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AMERICA'S FIVE FOR THE VANDERBILT

Locomobile and Thomas the Leaders—Pope-Toledo Protested, Replaced by Frayer-Miller—Haynes and Christie Qualifiers

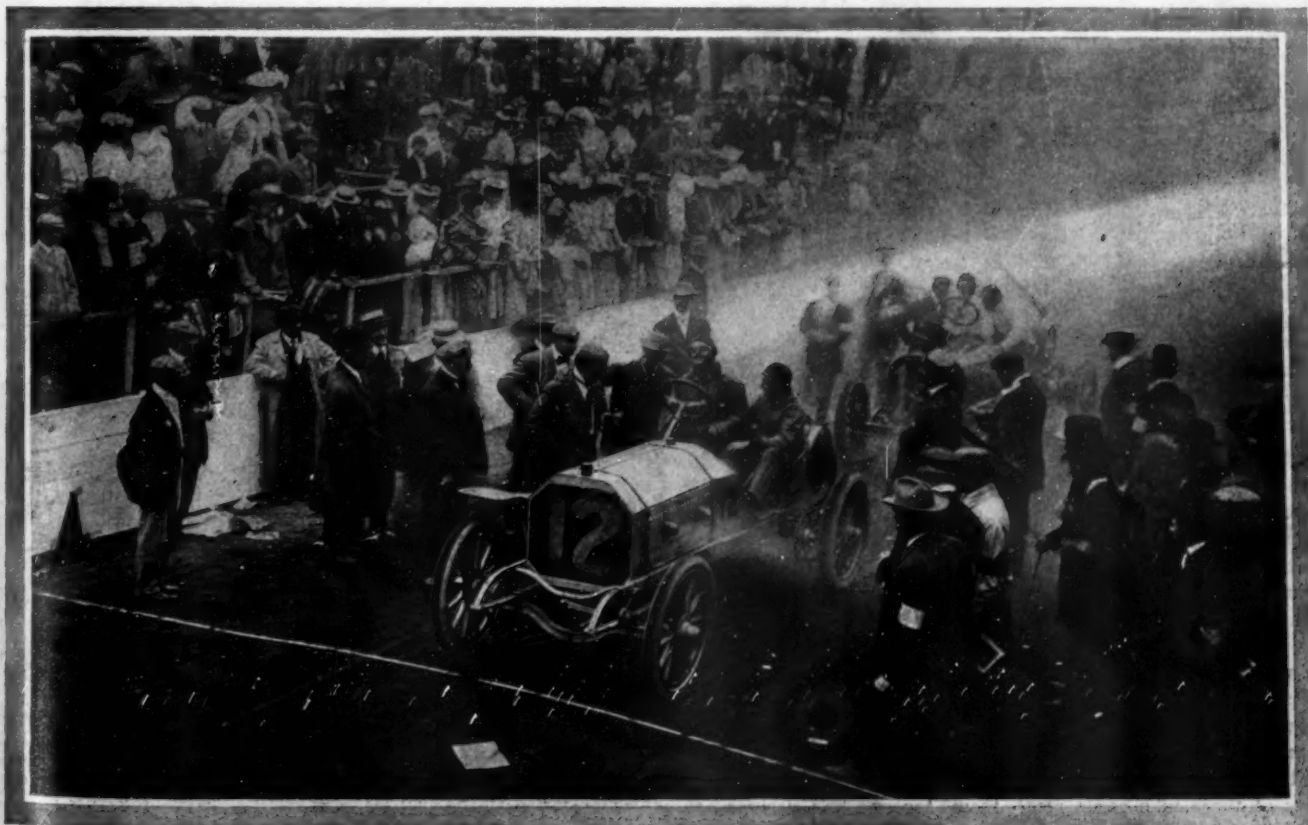
By A. G. BATCHELDER.

WESTBURY, LONG ISLAND, Sept. 22.—Tracy, the imperturbable, and LeBlon, the docile, made the great fight of the American Elimination Trial. Neither deserves nor aspires to any daredevil designation; both are fearless yet cautious, daring but certain. Lytle, whose skill leads him into the avenue of long chances, figured prominently in the motor battle for five circuits, and his heedless driving may have been a factor in sending the powerful Pope-Toledo monster to the barn at Bull's Head. When it

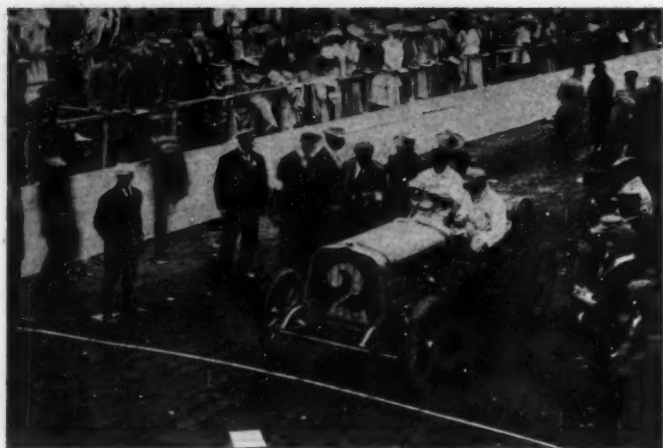
emerged, it was by the illegal towing that brought about the protest which finally resulted in the regrettable disqualification.

Tracy began the 297.10 miles' journey in customary deliberate manner, his first round leaving him not better than sixth. Crowding on more of the surplus strength of his Locomobile, the next whirl found him third, and thereafter he held this place when he did not improve on the position. "Old Steady" was his name.

Not until the ninth trip of the trying contest did the cool-headed



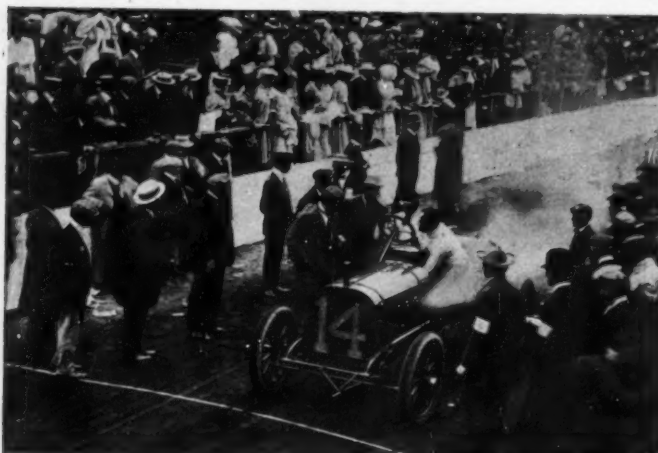
JOE TRACY AWAITING THE WORD FROM STARTER WAGNER, CALM AND CONFIDENT OF QUALIFYING AS ONE OF THE AMERICAN TEAM.



H. H. LYTLE, THE POPE-TOLEDO CANDIDATE, READY FOR THE SIGNAL.

American get clear of the equally unruffled foreigner, whose Thomas, born of French ideas, supplied going of the real sort. The lead alternated between the two after Lytle lost his grip, and up to the concluding circuit the issue had not been definitely decided. A close watch of the huge scoreboard and a bated listening to the announcements of the clarion-voiced Prunty had aroused the grandstand occupants to an unusual degree of excitement.

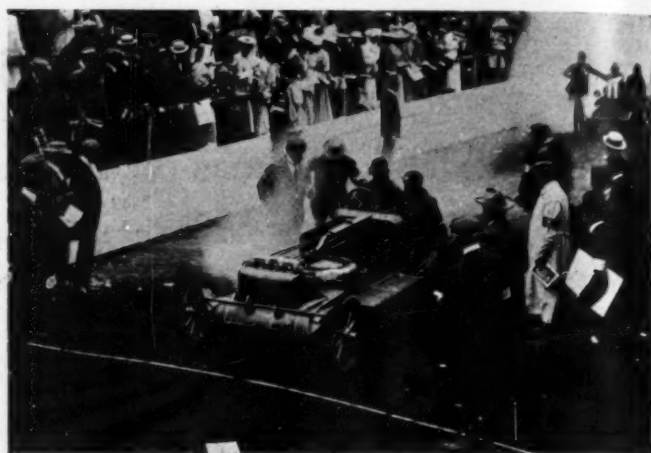
Anxiously the final coming of Tracy was awaited. Eyes were strained up the oil-stretched ribbon of dirty road, and ears were poised to catch the penetrating strains of the first bugler, a mile up historic Jericho turnpike, the commercial artery of fertile Long Island. It had been seen on the round before that Tracy had LeBlon beaten, barring accident. But there are many accidents possible in an automobile struggle.



"DAIMLER" HARDING AT THE HELM OF THE HAYNES QUALIFIER.

Abruptly the clamorous warning of the distant horn smote the moisture-laden air, down the road the chain of bright red flags fluttered, one following another, and with it came the oft-familiar shout of "Car coming." Then hurtled into view the pace-killer of the age—bounding along with frightful velocity, its pilot releasing all semblance of sanity and caution with the goal in plain sight. None had ever seen Tracy drive in such grand form, sitting erect and awe-inspiring, like a Norse sea king of old for whom the unknown seas had no terrors. Of course the thousands shouted, the slowly aroused sharing the enthusiasm of the moment as the superb helmsman dashed through the wired channel of agitated humanity, then down the turnpike and on to the weighing-out scales. A. L. Riker shared with S. T. Davis, Jr., the congratulations of those who could reach them, for one had designed the car and the other is the head of the company which has its factory at Bridgeport, Connecticut.

LeBlon, having had difficulties during the ninth lap, the victorious Tracy had assumed the advantage. Realizing that he could not be first home, LeBlon contented himself with his sure second and held his craft more or less in check, except in the last burst along the good old turnpike. The minutes wore away and the crowd began to wonder if something had not happened. Fully a quarter of an hour elapsed, then ensued again the call of the bugler, next the waving of flags, and down the road the missing appeared. Like the one who preceded him, LeBlon seemed to sit at his wheel as though the thundering juggernaut were a part of himself. Provided with a generous beard that overspreads his kindly yet determined face, the man from France, whose work for nearly a decade has been the driving of speed chariots, might have been taken for old Father Time in a wild flight to girdle the globe before the rising sun could foretell his coming. When such as the placid LeBlon find enjoyment in the guidance of these motor-surcharged projectiles, one can appreciate how the desire



CHRISTIE, WHOSE PERSISTENCY HAS GAINED HIM MANY FRIENDS.

of the moment got the better of him and impelled Vanderbilt to yearn to re-enter the flying land squadron and contend for the cup which has brought about two international struggles for supremacy in an unparalleled industry and which will have a third and world-watched one October 6. When the donor of the trophy learned that his intended participation had brought forth some objection, he at once abandoned the idea, born because he relishes the dust and smoke of the game of the motors.

After Tracy and LeBlon moved off the stage there was a lull of a half hour before the reliable Haynes, with "Daimler" Harding in charge, finished its tenth round. Reports came that the thousands around the course were becoming indifferent to the commands of the special officers and were overrunning the road in imminent danger of their very lives. The rain, which



LE BLON, SECOND TO QUALIFY, ROUNDING THE LAKEVILLE TURN.



WHEN TRACY COMPLETED HIS TENTH ROUND IN ADVANCE OF ALL OTHERS HE RECEIVED A TREMENDOUS RECEPTION.

had fallen for a short interval earlier in the morning, now assumed a threatening look again, and Referee Vanderbilt, preferring to be on the safe side, used the power lodged in his discretion and called the Trial at an end. At the time, Lytle with his Pope-Toledo, Christie with his front-drive and Lawwell with the surviving Frayer-Miller were still running.

The remaining six of the dozen that started had fallen by the wayside for one reason and another. Caillouis' Thomas retired in the sixth lap because of magneto trouble; Belden's Frayer-Miller broke a wheel at East Norwich in the fifth round; Roberts' Thomas stripped a gear on the first lap, got agoing after several hours, and then stopped on the fifth lap when further pursuit was hopeless; Keeler's Oldsmobile suffered from a broken axle, but persisted and made one lap before the calling off happened; Frayer's Frayer-Miller went down and out on the opening round through a broken rod.

The Frayer-Miller contingent was much upset at the referee's decision, subsequently approved by the Commission, since at the time Lawwell's car was in vigorous pursuit of Christie, who had less than sixteen minutes' advantage

with two laps remaining. Later came the protest against the Pope-Toledo for non-observance of rule 42, and the facts were substantiated so thoroughly that nothing remained for the Commission at its Tuesday night session except to vote the disqualification which made a place for Lawwell.



How the Thousands Reached the Course.

Even the Cup contest of last year did not attract as many onlookers as the 1906 Elimination. The early birds totaled thousands, and they came Long Islandward in all sorts of conveyances, for everyone does not own an automobile. The Long Island railroad had special trains crowded to capacity. It was an endless procession of autos across the Thirty-fourth Street ferry, and other streams flowed from Brooklyn and from all parts of Long Island toward the thirty-mile circuit in Nassau county.

Profiting by the experience of a year ago, the active members of the Cup Commission located early at the grandstand, prepared to keep the situation in thorough check from the onset. Chairman Jefferson De Mont Thompson was one of the first to locate, and Referee William K. Vanderbilt, Jr., was another who cared little for sleep. Ex-Chair-



ARRIVING AT THE GRANDSTAND BEFORE DAYBREAK.

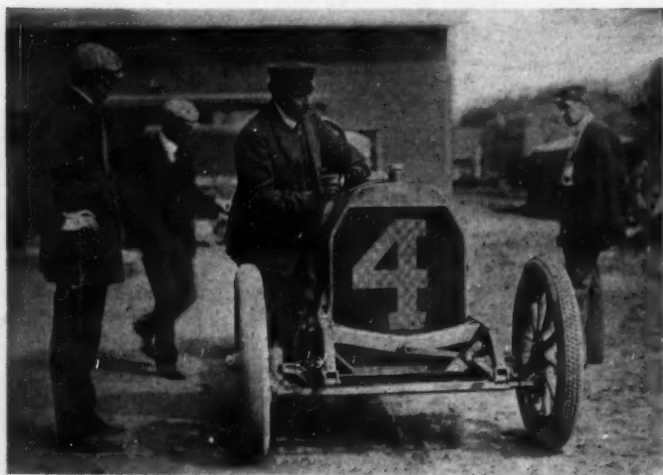
man A. R. Pardington and Robert Lee Morrell were other eager workers, prominent among whom was Clerk of Course Frank G. Webb. Shortly before 5 o'clock the roads leading into the course were barred, but for many miles touring cars were lined alongside the road, their occupants trying to sleep, impatiently awaiting the coming of the daylight. Some tried to kill the chill of the early morning by inviting bonfires, and fakirs of all kinds prepared for the sale of eatables and souvenirs.

Society had an unusually early rising, and the cold, gray dawn dampened the enthusiasm which many had possessed the night before. But the big automobile races of Long Island only come once a year, and the fashionable folk came forth expectantly from their homes on Hempstead Plain and in the Wheatley Hills and wended their way to the grandstand as the first streaks of Old Sol emerged from the eastern horizon.

How the Battle of the Giant* Began.

The mist surrendered to the light, and the energetic officials gradually untangled the apparently inextricable maelstrom in front of the grandstand. The dozen cars were lined up, and order came out of chaos as the hour of 6 o'clock approached.

Keeler's Oldsmobile rested on the tape; Timer Butler held a watch, and Starter Wagner shouted out the last ten seconds, one by one, and in concluding shouted "Go!" Lytle, smiling and confident, with the 120-horsepower Pope-Toledo, the most powerful car in the contest, went away to a slow start. Mongini, the opera singer, who loves the deep-toned bass of the motor levathans, got away with smooth alacrity. Caillois, the veteran, the first driver of the Thomas cars, was caught napping, his engine

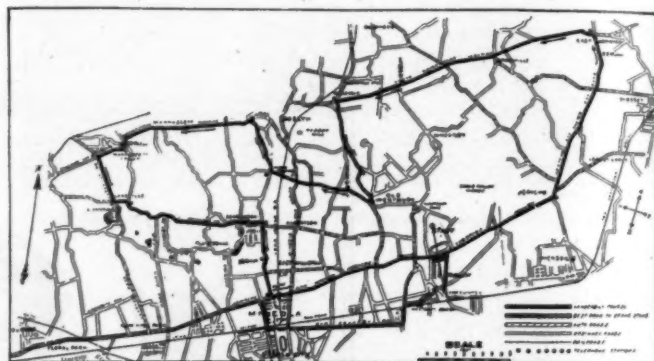


CAILLOIS PREPARING HIS THOMAS FOR THE SCALES.

requiring some coaxing before it accepted the spark of life. A loss of 25 seconds was the result. Le Blon, the next Thomasite, was also a bit late, he coming behind his countrymen because Owen and the Maxwell failed to report. The third Thomas car, driven by Roberts, was next off, followed by one of the noisy 110-horsepower Frayer-Millers with Frayer himself at the wheel. This brute bucked a bit, and created some excitement for the occasion. Christie, in his stripped touring car, was a leisurely starter, and then came Lawwell with another Frayer-Miller, jumping away to an excellent start. Tracy in his Locomobile was a quick beginner, and he was down the road and out of sight before the green-bodied Haynes, with "Daimler" Harding in command, took place at the line. The third Frayer-Miller, with "Transmission" Belden at the wheel, completed the dozen starters.

As They Went Past the Grandstand.

Lytle was the first to flash by the grandstand, and 32:23 showed the good rate of speed at which he was vanishing. Cheers greeted his coming and going, but his transit was so swift that the roar of the multitude scarcely reached his ears. Le Blon next came, with an exuberant rush; then Christie, next Belding, then Harding, and finally Tracy, the one most looked for. Even thus early the Locomobile, Thomas, and Pope-Toledo were shown to be the real contenders. Lytle led on the first round, retained the honors on the second circuit, but gave way to Le Blon on the third lap. The next time Tracy was the best traveler, and Lytle



because of a puncture fell back to third place. A quick repair and the fifth circuit found him at the heels of Le Blon. Thereafter his difficulties accumulated, and on the sixth round the monster limped into its quarters at Bull's Head for repairs, following which came the protested towing that brought about the disqualification.

The duel now involved only Tracy and Le Blon, and the lead see-sawed, Tracy going to the fore in the ninth round and remaining there to the finish. The loss of a tire on the Hairpin turn at Old Westbury was the misfortune to Le Blon that enabled his opponent to clinch the victory.

HOW THEY WILL START IN THE CUP RACE.

No	CAR	H. P.	DRIVER	ENTRANT	NATION
1...	Thomas	115	Le Blon	E. R. Thomas	United States
2...	Panhard	120	Heath	Panhard-Levassor	France
3...	Mercedes	120	Jenatry	Robert Graves	Germany
4...	Fiat	120	Lancia	F. I. A. T.	Italy
5...	Frayer-Miller	110	Lawwell	W. J. Miller	United States
6...	Hotchkiss	130	Shepard	Hotchkiss Co.	France
7...	Mercedes	120	Luytgen	George McK. Brown	Germany
8...	Fiat	120	Nazarro	F. I. A. T.	Italy
9...	Locomobile	90	Tracy	S. T. Davis, Jr.	United States
10...	Darracq	100	Wagner	A. Darracq	France
11...	Mercedes	120	Keene	Poxhall Keene	Germany
12...	Itala	120	Cagno	Itala Co.	Italy
13...	Haynes	50	Harding	John Haynes	United States
14...	Clement-Bayard	100	Clement	Clement-Bayard	France
15...	Mercedes	120	Weillschott	F. I. A. T.	Italy
16...	Christie	50	Christie	Walter Christie	United States
17...	De Dietrich	120	Duray	A. de Turckheim	France
18...	Itala	120	Fabry	Itala Co.	Italy

*13 was omitted in the drawing which took place Garden City, September 24.

WEIGHING-IN AND WEIGHING-OUT.

By E. L. FERGUSON.

The morning attendance at the Garden City scales was almost confined to the weighing-in officials: S. A. Miles, E. T. Birdsall and Georges Dupuy. Everyone seemed to understand that little would be done until after the noon hour. When the scales were declared officially open, there was but one car on hand, the Oldsmobile. In fact, so prompt had been Keeler that his car was on the stand at 9:30 A. M., ready for the opening signal. At 10:05 the car was marked and off the stand, showing 1,990 pounds at the first trial. Keeler reported that he had new wheels on the way from the factory, and asked that he be allowed to weigh-in again after the wheels were changed. The new weighing-in took place late at night without change in the first figures.

The Haynes car was the second to show up, arriving at 11:30 A. M., and finally weighing out at 12:15 with 2,216 pounds, after the rear shock absorbers had been removed. The first trial showed 2,400 pounds with everything on. With water, oil and battery, and absorbers off, and magneto on, the car was brought down to 2,205. The minute the absorbers were laid on the weight surprisingly jumped up to 2,223. Yet the absorbers were said to weigh only 8 pounds 6 ounces on a counter scale.

The next in order was the Thomas No. 6, coming on at 12:20 at 2,350 pounds, with all on. It was rolled off, and the water, oil and gasoline removed, and the dirt carefully brushed out from between the studs on the armored tires. On this, as on the other two Thomas candidates, the front right and both rear tires had armored treads with prominent projecting studs. So careful were its sponsors that a track of newspapers was laid to run it back on to the scales. This time it showed 2,215 pounds, with magneto, being just four pounds under the rule.

In the meantime the Frayer-Miller No. 11 had been given a trial and a final weighing, it being four pounds overweight at first, but the removal of a hand grip brought it down to 2,203, or one pound under weight, there being no magneto. The Frayer-Miller No. 8 also came in between the two trials of Thomas No. 6, and showed 2,192 empty, on one weighing.

The first car to go on in the afternoon was the Frayer-Miller No. 16, at 2:45. But one trial was needed, as it showed 2,200 pounds, empty. Five minutes after came the Thomas No. 4 at 2,218 pounds, with magneto, empty, and with its tires groomed.

In another five minutes the Locomobile was put on, and showed 2,240 pounds, empty, and with magneto. The removal of the mud-guards over the front wheels brought the weight down to 2,202 pounds, with allowance for the magneto. This was immediately followed, at 3:10, by the Pope-Toledo, which showed up on the first trial at 2,195 pounds. There then came a break of three-quarters of an hour, when Christie drove on to the scales just as he came over from his headquarters, and with himself and his mechanic on board the weight was 2,088 pounds. With the two men off, but with water, oil and gasoline on board, the car weighed 1,780 pounds. Fifteen minutes after the Thomas No. 7 was pushed on, and showed 2,230 pounds, with magneto, being 11 pounds over weight. Grooming was resorted to, and this brought it under the requirements, the final weight of record, one-quarter hour afterward, showing 2,218 pounds.

In the meantime the three missing cars, the Matheson, Maxwell and B-L-M, were reported. The Matheson had been tried on the scales before the official weighing hours and was found 40 pounds over weight. Its sponsors sent word that work was being pushed on it to reduce the weight to the required figure. It was finally weighed in at 7:30 P. M. at proper schedule. The accident to the Maxwell eight-cylinder during the earlier hours of the morning had only spurred the crew representing it to eagerness, and a stock four-cylinder touring car was worked on and brought to the scales at 4:45, and weighed in at 1,990 pounds, with oil, gasoline and water on board. Word had come by this time from the B-L-M that owing to an accident it would not be on hand for the trial, and therefore not for the weighing-in.



OLDSMOBILE HAD NO DIFFICULTY IN WEIGHING-IN.

At intervals during the hours of weighing-in, the cars were operated one at a time out on the street to show their reverse and their brakes, the latter test requiring the skidding of the rear wheels while passing the committee under speed. All passed muster on the first trial but the three Thomas cars and the Maxwell. In the hurry of getting the latter together the rear brakes had been overlooked, and they had to be tightened. In the Thomas three the drivers, for reasons known only to themselves, were bashful in showing what their cars could do in that direction. It took Le Blon twice, Caillois three times and under protest, and Roberts four times with more protestations, before they could overcome their diffidence and come down to the line "all standing" at the rear wheels.

In spite of the heavy rain throughout the weighing-out process on Saturday, not a few persons were on hand to watch the first three and to congratulate the winner. Tracy, Le Blon, and John W. Haynes driving the Haynes, appeared each with a representative of the committee, who had come over from the course on the cars. Tracy arrived at 12:30 P. M., and weighed out at 1:45 at 2,219 pounds, with magneto. Le Blon came up at 1:15 and weighed out at 1:50 at 2,218 pounds, and the Haynes car arrived at 1:45 and weighed out at 2:30 at 2,195 pounds. Lawwell, in Frayer-Miller, weighed out at 2,204 pounds.

In the meantime the weighing committee had telephoned to the Pope headquarters, telling them to come over, and asking them to notify Christie on the way. These two cars put in their appearance, both being towed by a Pope-Toledo touring car. Christie was immediately on the scales, weighing out at 1,895 pounds, including a detachable rim with tire, and five minutes after the Pope-Toledo was put on the scales, showing 2,210 pounds. After a cleaning, the car weighed out at 2,195 pounds.



LAWWELL AND THE SUBSTANTIAL LOOKING FRAYER-MILLER.



TABULAR STORY OF THE ELIMINATION TRIAL FOR THE VANDERBILT CUP, SEPT. 22, 1906.

No.	Machine	H.P.	Driver	1st lap	2d lap	3d lap	4th lap	5th lap	6th lap	7th lap	8th lap	9th lap	10th lap
12.	Locomobile...	90.	Tracy...	37:53	1:08:55	1:30:29	2:09:17 1/5	2:44:16	3:13:45 3/5	3:51:12	4:22:11 3/5	4:53:38 3/5	5:27:45
6.	Thomas.....	115.	LeBlon..	33:34 3/5	1:06:00	1:38:08 3/5	2:09:35	2:43:06	3:14:38	3:49:56	4:21:39 2/5	5:08:22	5:51:25
14.	Haynes.....	60.	Harding.	36:14	1:14:28 2/5	1:50:48 3/5	2:28:44	3:04:40	3:45:07	4:21:03	5:00:56	5:46:37	6:25:39
2.	Pope-Toledo..	120.	Lytle...	32:23	1:04:42	1:38:29 3/5	2:11:15 3/5	2:43:58 3/5	3:14:46	3:51:32	4:21:39 2/5	5:08:22	5:51:25
9.	Christie.....	50.	Christie..	33:05 2/5	1:18:27	1:53:33 3/5	2:47:30	3:36:55	4:15:38	5:43:39	6:20:34 3/5	Race called	Race called
11.	Prayer-Miller.	110.	Lawwell.	50:17	1:27:41 3/5	2:17:35	2:51:42	3:28:23	4:18:19 3/5	5:02:51	6:36:06	Race called	Race called
4.	Thomas.....	115.	Caillois..	1:09:13	1:43:26	2:17:27	2:54:14 3/5	3:27:18 3/5	Retired with magneto trouble.				
16.	Prayer-Miller.	110.	Belden..	34:03	1:57:46	2:55:12	3:31:12 3/5	Broke wheel at East Norwich.					
7.	Thomas.....	115.	Roberts..	3:56:49	4:31:27 3/5	5:06:05 3/5	5:42:12	Stripped gear at Hairpin curve 1st lap. Retired on 5th lap.					
1.	Oldsmobile...	45.	Keeler...	2:14:01	Broke front axle.								
3.	Matheson....	60.	Mongini.	Ditched on Manhasset Hill, and collided with telegraph pole.									
8.	Prayer-Miller.	110.	Prayer...	Broke radius rod and retired.									
5.	Maxwell.....	80.	Owen...	Did not start.									
15.	B-L-M.....	85.	Dolbeau.	Did not start.									

Figures in first line indicate total elapsed time. Figures in second line indicate elapsed time for the lap.

RELATIVE POSITIONS IN RACE AT END OF EACH LAP.

No.	MACHINE	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
12.	Locomobile.....	6	3	3	1	3	1	2	2	1	1
6.	Thomas.....	2	2	1	2	1	2	1	1	2	2
14.	Haynes.....	5	4	4	4	4	3	3	3	3	3
2.	Pope-Toledo.....	1	1	2	3	2	4	4	4	Race called	Race called
9.	Christie.....	3	5	5	5	7	5	5	5	Race called	Race called
11.	Prayer-Miller.....	7	6	7	6	6	6	6	6		
4.	Thomas.....	8	7	6	7	5	Retired.				
16.	Prayer-Miller.....	4	8	8	8	8	Retired.				
7.	Thomas.....	10	9	9	9	Retired.					
1.	Oldsmobile.....	9	Retired.								

TABLE OF FASTEST LAPS MADE IN ELIMINATING TRIAL.

No.	MACHINE	DRIVER	TIME	LAP
12.	Locomobile.....	Tracy.....	20:29 3/5	Sixth
6.	Thomas.....	LeBlon.....	31:26 2/5	Fourth
2.	Pope-Toledo.....	Lytle.....	32:19	Second
4.	Thomas.....	Caillois.....	33:04	Fifth
11.	Prayer-Miller.....	Lawwell.....	33:15	Eighth
7.	Thomas.....	Roberts.....	34:38	Third
9.	Christie.....	Christie.....	35:06 3/5	Third
14.	Haynes.....	Harding.....	35:56	Fifth and Seventh
16.	Prayer-Miller.....	Belden.....	36:00 3/5	Fourth

TABLE SHOWING ROTATION OF PASSAGE AND RATE OF SPEED FOR EACH LAP.

Miles per hour total elapsed time												
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CONCERNING THE CANDIDATES FOR QUALIFICATION

By H. F. DONALDSON

THE dozen cars lined up along the road at the grandstand before the start of the Elimination Trial was the finest collection of high-powered machines of American build that has ever been assembled in one place. There was a noticeable improvement in design and construction, especially in the special racing cars, as compared with the starters in previous elimination trials. Probably the greatest surprise was the Thomas trio, which represented a notable departure from previous design; in fact, these cars were distinctly French in type. Their narrow tread—50 inches—and long, low build gave them an exceptionally racy appearance. The knowing ones who looked the cars over realized that they would be hard to beat in a long race, and after the event there were many expressions of regret that only one of the cars had qualified. That the drivers had not had sufficient time in which to "tune up" was the generally accepted reason.

A rather hasty inspection of these machines before the race showed the influence of the designer Callois' experience with the Brasier machines. Under the cover of the hood this was not so apparent to the onlooker at the start and showed, perhaps, more noticeably in the front axles, with true reversed Elliott steering knuckles, and the combined gasoline tank and driver's seat. The sloping dashboard, equipped with clips holding two long-spouted oil cans of the locomotive type, distinctly recalled memories of the imperturbable Thery and his Gordon Bennett racer.

A casual glance at the big Locomobile racer would not be sufficient to distinguish it from the monster built for Dr. Thomas, which Tracy drove into third place in the final race last year. Yet aside from the exterior lines there are many differences which show the result of racing experience and others that have been worked out by original investigation. The most radical changes are the disposition of the inlet valves in the cylinder heads, worked by the familiar rocking levers, the transfer of the two-to-one gearing from the front end to the rear of the motor, and the use of a combined cone and pin driven (positive) clutch of the Brasier type.

Its general appearance at the line suggested power, and this was practically demonstrated later in the race by a rapid rate of acceleration. It takes very skillful handling to drive a car at high speed around turns with a pin clutch, but when the clutch is locked home the troublesome question of slip is eliminated and the rate of acceleration is conditioned only on the reserve power of the motor. The Locomobile seemed to have an abundance.

After the race the driver, in reply to a query said that the speed of the car on the straightaways was only limited by his ability to keep it on the narrow road.

The excellence of the design and the beautiful workmanship of the Locomobile had made a profound impression, and even the foreign cracks who looked it over came away with a very decided feeling of respect for it as a competitor.

Considering that the Haynes car was really a stock model and that Harding, the driver, had little familiarity with the machine, or any of its type, it made a remarkable showing. When covered with the hood, at the starting line, the front end of the car did not show any peculiarity. At the other end some special features of construction were easily recognizable. One of these was the arrangement for taking care of the torsional strains on the rear axle. This consisted of a short vertical rod of I-beam section extending upward from the differential housing and which passed through a yoke in a rod carried on brackets attached to the main frame, the yoke being fitted with rollers to give an easy bearing. Heavy leather straps were passed around the rod which carried the yoke and the rear axle so as to prevent any excessive reaction of the rear double elliptic springs.

Lytle's Pope-Toledo was expected to be among the winners by those who had looked over the powerful motor of the big car and

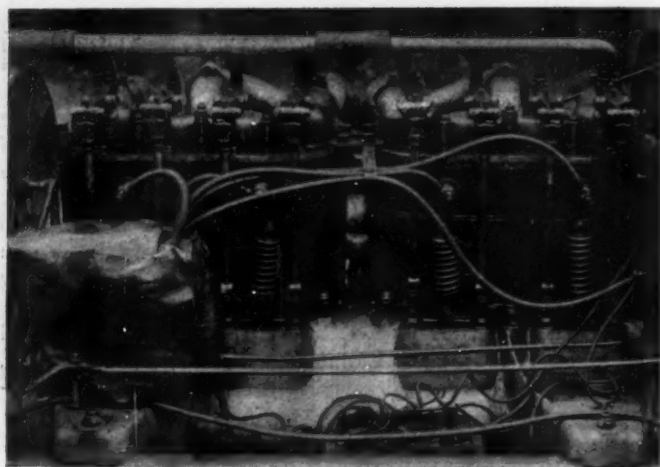
who were familiar with the skill of the driver. A peculiarity of the motor was the use of a single coil spring for each set of valves on each cylinder. The valves were all carried in the heads of the cylinders and worked in the usual way by rocking levers actuated by long push rods, which were fitted with forked joints at the lower ends, just above the top of the crank chamber. These forks were connected by a rocking lever held down by a heavy coil spring, which was put in compression by the motion of the valve rods imparted by the cams. The arrangement is clearly seen in the photograph shown in the upper left-hand corner of page 396. This car was fitted with high-tension magneto ignition.

Distinctively American ideas were represented more largely in the Frayer-Miller cars than in any others on the course. The entry of three machines, each fitted with four air-cooled cylinders of 7 1/4 inches bore and 6 inches stroke, showed unlimited confidence in the system of forced draft cooling without water. At the starting line it was apparent that the drivers were not bothered about the speed of the engine in relation to the speed of the car, as they turned over their motors at speeds which were not far below the maximum. These



LOOKING DOWN ON TOP OF LOCOMOBILE MOTOR.

Note the offset rocker arms operating inlet valves in the cylinder heads.



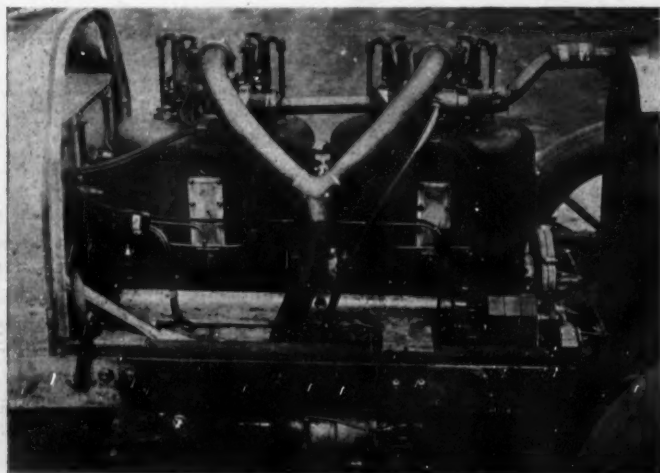
CAMSHAFT SIDE OF POPE-TOLEDO MOTOR.

Note the peculiar valve motion.

cars sat low, the occupants' legs, instead of being extended in the usual fashion, were out of the way in a well, the bottom of which was only about 6 inches above the road. They looked odd in that the driver sat on the left side, and on account of his low position the steering pillar was very short.

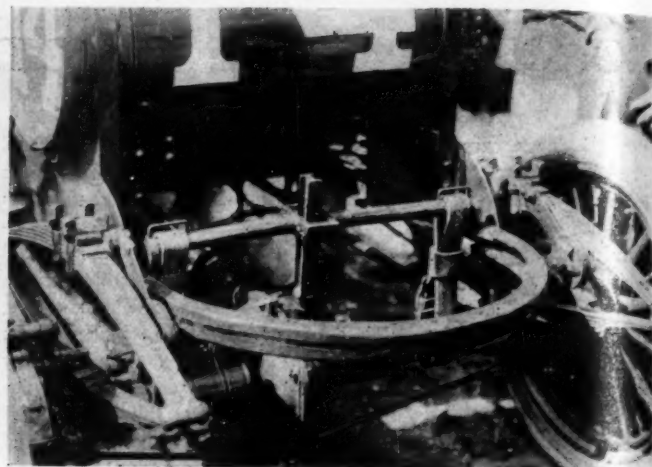
In the photograph the double float chamber carbureter is plainly seen. The jets pass upwards diagonally and mingle with the air in the cone-shaped chamber which is attached to the underside of the four-way connection in the inlet pipe. Air is drawn in through a funnel-shaped orifice below the mixing chamber of the carbureter. The header which forms the inlet pipe is attached to the sides of the four-way connection and in the top of this connection is a flat wing auxiliary air valve controlled manually from the driver's seat. Throttling is effected by a circular shutter in the inlet pipe, which is actuated by bevel gears and rod connections; the former are plainly seen in the photograph at the right-hand end of the header. The running of these cars was accompanied by the peculiar metallic sound of the exhaust which is frequently noticeable in air-cooled machines and which soon came to be recognized by the spectators along the course.

The little Oldsmobile looked diminutive in the group of racers of 100 horsepower and over. A little detail of its equipment which attracted attention was the support of the cylindrical gasoline tank by narrow wood strips for its entire length, instead of being carried on comparatively narrow saddles, which are likely to be forced up into a copper tank by the fearful bumping over bad stretches of road. On this car the springs were wrapped with cord in foreign racing fashion.



RIGHT SIDE OF THOMAS MOTOR.

Note the carbureter below frame.



REAR END OF HAYNES TOURING CAR.

Note the vertical torsion rod and yoke.

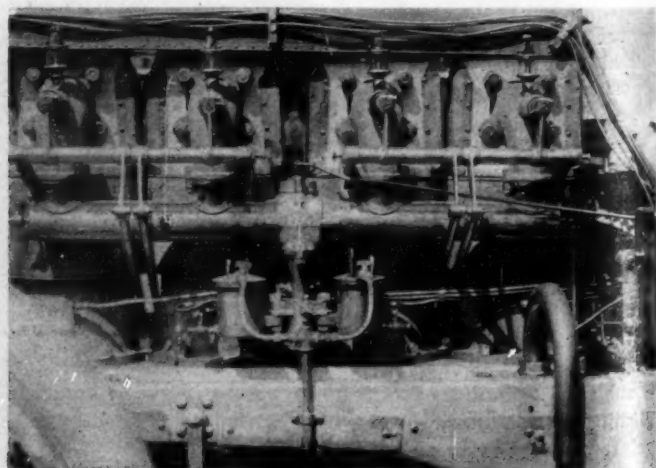
Mongini in the Matheson made a fine impression with a beautiful start in which he seemed to glide into top speed from rest, in a few rods, without the slightest jar. It was the feature of the getting away. This machine had a perforated frame; the only one of the kind in the race, though a not unusual feature of racing car construction in previous contests.

The Christie car is *sui generis*, and its construction was less a matter of comment than the pluck of the owner and driver in continuing the contest with the ill luck which has persistently attended his road racing efforts.

There was a good deal of sympathy expressed with the builders of the B. L. M. car, which cracked a cylinder head on Friday before it reached the course. The car had been built with the most scrupulous attention to detail, and that it would have been fast and formidable was generally conceded by those who had examined it in the shops.

Many little defects were of course developed in the machines as a result of the terrific punishment they received, but these were mostly in accessory fittings and they will be thoroughly worked out in the final try outs before the Vanderbilt race.

It was very unfortunate that the Apperson car had been put out of the running by the accident during practice, for it had demonstrated a capacity for racing speed, and its construction showed a great deal of thought and a high degree of mechanical skill. That it would have made a good showing was unquestioned. The builders had expended much time and a considerable sum of money on the racer, and from a technical standpoint it had a splendid chance for a place on the team.



INLET SIDE OF FRAYER-MILLER RACER.

Note double float feed chamber carbureter.



EVE AND MORN OF BATTLE.

By GEORGES DUPUY.

I am at the Thomas Camp, Krug's Corner, and it is 11:30 P.M. It is a grand night. A slow, lonesome moon in her first quarter travels softly across the dark blue dome. All the stars are there, too, ready to contemplate a good bit of the excitement enacted up and down the black road. The whole celestial hierarchy, from their high seats of gold, will witness the first gallop of the steel monsters, after they have left the garages, on the different points of the course. I am tired of all the noisy, excited crowd of mixed sportsmen, loafers and criticising farmers that have invaded Krug's Inn. I have been trying to find a quiet place to write for the last two hours, without success. But here comes my old friend, Caillois, just out of his room. He wears a white flannel shirt, his little French auto cap, and walks in slippers. His conquering blond mustache is a smile itself.

"Hello, Gustave? How do you feel?"

"I am all right, Georges, but this is a confounded noisy place to sleep. On the other hand, I don't see any wire fences nor any sign of organized guard to keep back those masses to-morrow all over the course. Well, I dare say we will be compelled to do as in our early races, in France; that is 'guess' the road and go ahead just the same if the *badauds* prevents us seeing it. Now come and see our thoroughbreds with me."

With great difficulty we succeed in traversing the thick ranks of people curiously looking through the trellised gate of the garage, vigilantly guarded. Under fifty powerful electric lights the three long, sturdy stallions of steel, painted like war torpedoes, are here, standing ten feet apart, each surrounded by half a dozen busy, sweating workmen. The three racers, identically alike, look like patient beasts enduring all sorts of long, tedious grooming. One man has just taken a detachable rim off Le Blon's No. 7. Another is perseveringly turning something with a big wrench, in her very inside. Montague Roberts, the "American Benjamin," over there, near a bench full of parts and tools, wants to know what became of his magneto cover. "Who's seen that magneto cover of mine? Don't all speak together at the same time!" says he, as nobody cares to answer. But suddenly a tremendous firing fills up the whole garage, covering all voices and hammer strokes. Le Blon has just cranked his motor, and the huge repeating guns of the exhaust that flank the armored engine are shooting a terrible fusillade. Calm, and rather sad-looking in his great whiskers, the excellent French driver watches attentively an upper valve, while the

motor makes everything in their neighborhood tremble violently. Close to me, Caillois and Amedée Longeron, the clever engineer who has built the Vanderbilt cars at the Thomas factory, are talking in each other's ear. I can hear Longeron say, amidst the infernal noise, "If I were you, I'd put another leather shoe in front, at the left. May rain early in the morning." Now the big motor is silent. E. R. Thomas, who has just entered the garage, takes me by the arm and leads me to a corner of the building to show me a great display of parts of all kinds, wheels, tanks, valves, wires, carbureters, gearcases, chains, tires, rims, a motor, a radiator, etc. . . . "We have manufactured another complete racer, in case of emergency," says Mr. Thomas.

But Caillois, the racing manager and head driver of the team, has just signaled the millionaire manufacturer from the other end of the garage. He wants to show him something. Mr. Thomas approaches. With large, emphasizing gestures, Caillois explains what it is. Now Le Blon, stretching out both his arms in great impatience, shouts to one of the French mechanics, "*Passes moi une clef a tuyau, vite!*" And Roberts, wiping his forehead, emerges from underneath his car. . . .

* * *

I can without difficulty imagine the stupefaction of a very old grandfather of this century, suddenly brought in here by his grandson. "What an inferno," would say the quiet ancestor. "What ails those tired, greasy, worrying people, filing, hammering, screwing, running like mad across that shed, in the middle of the night? Won't they go to bed? And what are these engines for? What's going to happen?"

"Why, grandpa, didn't you hear of the Vanderbilt Cup Race? These are the three . . ."

And suddenly, sharply cutting the explanation, one of the engines starts roaring in a tremendous thunder.

* * *

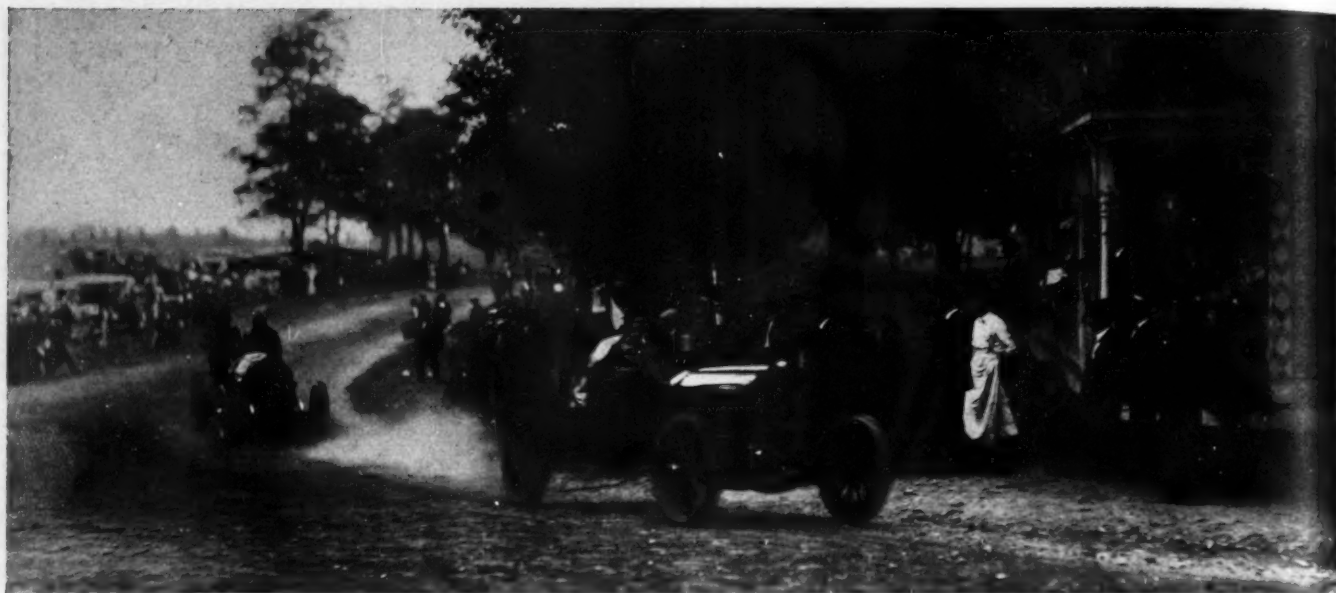
1.40 A.M. Madame Longeron finishes a racing cap for Le Blon. That racing cap is taken out of an old coat belonging to her husband. She shows her excellent work to me and smiles. The good lady looks very tired, but she doesn't want to retire as long as Longeron is working. The cars of Le Blon and Caillois are left alone now and seem to sleep. Over them the lights are turned off. The two French boys have gone up to their room. A good half of the workmen are sleeping on the floor, near the great racers.

Outside, a slow train whistles, a dog barks far away toward Mineola. . . . The cars, around, are filled with sleepers.

I can hardly keep my eyes open. There is a cot reserved for me in Caillois' room. Let's go and see if there's anybody in it.



CHRISTIE ON ROSLYN ROAD.



LE BLON (THOMAS) IN CLOSE PURSUIT OF "DAIMLER" HARDING (HAYNES) AT THE TURN AT JERICHO.

HOW THEY TURNED AT JERICHO.

By C. C. BRAMWELL.

Some there are who prefer to see an automobile contest at its most dangerous point, where even the most conservative driver must take his life in his hands, and where the cars, skidding wildly around a sharp turn, stir the blood of the most jaded spectator; others prefer a straightaway, where tremendous speeds are attained with comparative safety; still others seek a combination of both vantage points—a corner not too sharp, which each driver negotiates differently, but all at high speed, and where individual skill and judgment are given full sway. Such a place is the Jericho corner, where the Jericho turnpike swings up toward East Norwich, the first point of unusual interest on the Vanderbilt course after leaving the grandstand.

Jericho proper offers little inducement as a lodging place for the transient one-night-a-year race enthusiast, so he seeks shelter at Hicksville, or other nearby place. No matter how the Jericho corner is reached, the earliest arrival will find the little village up and about before him, and suppressed excitement in the very air. It was so on Saturday morning.

From the host of the night before at Hicksville, who charged \$5 for two hours of near-sleep, and who couldn't serve oatmeal with the dollar ham-and-egg-breakfast because the cow had strayed off to "see der ottomobil race," and left no milk behind, as was laughingly explained, to the waiter at the Jericho roadhouse, who combined the essentials of his calling with considerable and persistent conversational ability, and a desire to bet on "der blond feller with the breezy whiskers" (Le Blon); from the flagman at the corner, dressed in a little brief authority and a suit of rural jeans, perhaps a trifle pompous and with a frequently satisfied thirst, to the unafraid bright-faced city girl, perched in saucy manner on the top of a ten-thousand-dollar limousine; from one end of the countryside to the other, among natives and visitors alike, there prevailed an atmosphere of expectancy as 6 o'clock appeared, the hour for the start from Westbury, three miles or thereabouts down the well oiled Jericho pike.

At 6:05 Lytle, driving the big Pope-Toledo, was the first to take the Jericho turn, having passed Keeler, the Oldsmobile, who started first, and the race was on. Tracy took the corner better than any other, with Le Blon a close second. Tracy always kept away to the right of the road in approaching the turn, which swings off to the left, and cut his Locomobile across short at a sharp angle just as he reached the corner, shutting off power at the same instant. Le Blon, although his Thomas racer was narrower, hung close to the inside of the turn, sitting low and motionless. In fact, he never seemed to move his position from

one half-hour interval to the other. Christie shut off his power away down the road on the three early circuits, and "coasted" around the corner, but thereafter he took it at great speed under full power; his car skidded very little, appearing to be balanced perfectly. Lytle's Pope-Toledo took the turn well, his companion hanging far out and back to throw additional weight on the rear wheels, his left hand on the gasoline tank.

The Haynes car jumped up and down a good deal over the slightly rolling road approaching Jericho corner, but Harding always took the turn in good style, though very cautiously. The first time Caillois passed Jericho his mechanic was visibly nervous, his teeth gritted and lips compressed in apprehension, but afterward he became calmer. As the race progressed all the drivers seemed to gain in confidence and skill; the only car that took the Jericho corner at reckless speed was Frayer-Miller, No. 11, on the sixth circuit. Lamwell kicked up a blinding dust, and he was almost out of sight before it could be ascertained if he was safe.

Just before 7 o'clock the cry of "Car coming" was followed by the appearance of a big unnumbered gray racer, going very fast. A fair enthusiast cried "Call it No. 23," and such it was. Only a few knew at the time that the car was a Mercedes and the driver none other than William K. Vanderbilt, Jr., who was making a circuit of the course with Chief Surgeon Dr. L. N. Lanehart, of the Nassau Hospital. A grim reminder of the dangers of the day was a large hospital ambulance stationed at Jericho, but fortunately its services were not required.

Seventy-six cars by actual count were parked in a field at Jericho corner on the south side of the approach. Most of these were large touring cars, each easily averaging \$3,000 in value, a total of a quarter-million dollars or more. When the rain started just before 8:30 A. M., every car was vacant, except, perhaps, the chauffeur's seat, the various parties being lined up along the road. With the first drop of water everyone started for cover; limousines offered the best shelter, but, cape tops up and curtains drawn, the occupants of the less imposing cars were kept dry, especially those having the extra protection of glass fronts. Where the corner had been crowded with city and country folk a minute before there remained to view only the villagers; in that short time open automobiles had been quickly transformed to houses on wheels, and they were well filled until the shower had passed.

An amusing incident happened during one of the most exciting moments of the race when the village bad boy, grown up, stood unsteadily in the very path of the speeding cars, singing "I'm a Yankee Doodle Dandy." He mistook the laughter of the crowd for applause, and, thus encouraged, sought the cheerful influence of the bar once more.

AT OLD WESTBURY'S HAIRPIN.

By HOWARD GREENE.

There are few, if any, points on the Cup course where one can see such a variety of incidents, and get such a true idea of the ability of the respective drivers and the qualities of their cars as the hairpin turn at Old Westbury, located almost exactly midway between the start and the finish, in point of distance—that is, when a car passes the hairpin turn it has traversed within a few hundred feet of half the distance around the course. Cars can be seen approaching for a considerable distance, can be watched close at hand making the turn where the road doubles upon itself, and can be seen picking speed on the fine stretch of almost straight road after getting around.

While it was not expected that the first car scheduled to start, the Oldsmobile driven by Keeler, would prove a match, in actual speed, for the next car, Lytle's 120-horsepower Pope-Toledo, it was expected that the two would appear pretty nearly at the same time, and there was some surprise when the big Pope-Toledo appeared with the Matheson, the third starter, close behind, and the Olds not in sight. Lytle made the turn rather cautiously, skidding but little, while Mongini in the Matheson appeared nettled at having been passed, even though it was by a car having double the power of his own, and took the turn very daringly, skidding considerably but recovering skillfully and picking up well in a furious chase after the dwindling Pope-Toledo. Keeler with the Olds did not appear until about three-quarters of an hour later, when he passed on his first round just after the Haynes car, the next to the last to start, passed on its second round.

Third to pass was LeBlon, whose fast and clean work made him quite a favorite with the hairpin crowd, and many good-natured jokes were made at the expense of his big brown beard. Frayer's Frayer-Miller and the Christie car passed a couple of minutes later, the Frayer-Miller having apparently just overtaken the front drive car. Frayer made a fast but rather wild turn, and his car picked up rather slowly. Christie made a turn that was somewhat sensational. He went at the curve at fairly high speed and his rear wheels skidded wide; but evidently this matter had been carefully studied out by the designer-driver, for at the end of the skidding process the car was left headed almost exactly in the direction of the straight road, and the engine was speeded up almost before the rear wheels stopped sliding off to leeward. Christie did this nearly every time he went round, and did it with admirable precision; in fact, all of his driving that could be seen at the hairpin was remarkable for its regularity and precision. Christie was given the first real cheer of the morning.

Tracy got the next, as he took the corner in much the same cautious style as Lytle and LeBlon, his machine seeming to be very steady. Tracy made no really fast turns, even in his fastest rounds, and his car rarely skidded more than a few inches. As he passed his left rear tire was seen to be flat, and he ran up on the platform of the Diamond tire repair depot and a new one was put on. During the five minutes' delay Haynes, in the little green Haynes touring car, Callois in a Thomas and Belden in a Frayer-Miller passed.

Car No. 2, Lytle's Pope-Toledo, was the first machine around on the second round, Lytle taking the corner a good deal faster than he had on the first time, but still steadily and well. Five minutes later LeBlon brought his Thomas around for the second time, and then there was a wait of some twelve minutes before what proved to be the most exciting incident of the day at the hairpin.

Frayer-Miller No. 16, driven by Belden, came roaring down the road, with Tracy in the Locomobile in hot pursuit and gaining. Belden skidded around the turn a few seconds in advance of Tracy, who evidently intended to rely upon the rapid acceleration of which his car was capable to get past the Frayer-Miller while the latter was picking up speed after making the turn. Just as the air-cooled car got around the bend where it was hidden from Tracy by the crowd of spectators, Belden found that his hub brakes were fast on their drums, and his car came to a sudden stop in the middle of the road, exactly in Tracy's path and opposite a telegraph pole flanked by a high bank. Tracy made the turn with his usual precision and saw the stalled car when he was almost upon it. A crash was averted by throwing the wheel over and heading the car directly for the telegraph pole, at a sharp angle with its regular course; and at the instant when a collision with the pole seemed a certainty the car was again jerked around and passed between the Frayer-Miller and the telegraph pole with only a few feet to spare on either side. The rear wheels skidded toward the pole until it looked as if there would be a sideways collision, but this very skid probably saved the situation, for it headed the Locomobile straight through the narrow opening, and Tracy immediately opened his throttle and was almost out of sight before the crowd got its breath to roar out a cheer.

Scarcely had Tracy got past, when the cry "Car coming!" stampeded the crowd that had at once hemmed in the disabled car. Belden shouted for assistance, and his car was shoved sideways, by brute force, to the edge of the road just in time to let the Haynes go by on its second round. Belden lost no time in getting to work at his brakes, but it was nearly an hour before



SWIRLING AROUND THE HAIRPIN TURN AT OLD WESTBURY, LYTLE DROVE HIS POPE-TOLEDO WITH SURPRISING CAUTION.



THE HAYNES ASCENDING MANHASSET HILL.

he finished his temporary repairs and got well under way again. Lawwell, in a Frayer-Miller, had an extremely narrow escape from ending his race against the terrible telegraph pole. On his third round he approached the turn at a speed that looked altogether too high, and had no sooner struck the sharp part of the curve than his car skidded so badly as to be almost unmanageable. After hugging the inside of the curve for an instant, the machine shot to the outer side just as it turned into the straight road. Lawwell threw over his wheel to get back into the center of the road, but the speed of the car was still too great for sudden swerves and the machine slid bodily sideways toward the telegraph pole, bringing up about two feet from the twelve-inch timber. But the car was now headed for the opposite side of the road at an angle of about forty-five degrees, as an inspection of the wheel tracks afterward showed. The driving wheels got a sudden grip and the car crossed the road, ploughed up onto the bank and almost went into the crowd, and then Lawwell got it down into the road again, only to shoot to the opposite side in another wild swerve. By this time the speed was so reduced that Lawwell got into the road and straightened out; but the terrible wrenching had been too much for rubber and canvas, and both his rear tires were torn loose, necessitating a long stop at the Diamond tire depot.

Le Blon, whose driving seemed to please the spectators, showed himself to be a cool-headed man under maddening circumstances. Some twelve minutes after Tracy straightened away for the last fifteen miles of the race Le Blon thundered along in his wake. When less than half a mile beyond the turn, however, his engine first missed fire a few times and then stopped dead. The driver evidently knew exactly what was up, for without an instant's hesitation he went to the carbureter, disconnected the gasoline feed pipe, blew through his spray nozzle, connected up again and was off, having spoken only a dozen words to his mechanic and working with coolness and decision.



SURVIVING FRAYER-MILLER CLIMBS AT GOOD SPEED.

RUSHING THE MANHASSET HILL.

By W. P. STEPHENS.

The most picturesque part of the Cup course lies in the vicinity of Manhasset Neck, a hilly peninsula jutting out for about five miles into Long Island Sound. On its eastern side Hempstead Bay reaches in to Roslyn, nestling under the famous Harbor Hill, with an elevation of 391 feet above sea level; on the western side of the neck Manhasset Bay runs in to take the waters of an old millpond dammed by the roadway itself. Skirting Harbor Hill by a detour to the south at Bull's Head, the course falls to Old Westbury and then rises through the westerly suburbs of Roslyn until it reaches a height of 220 feet on the crown of the neck. In the distance of one and one-half miles from this point west to the foot of Manhasset Hill the road drops almost to tide water; then, in the next half mile, it rises to 200 feet again before beginning the regular decline through Lakeville and down to the finish. With few straight or level stretches, the opportunities for high speed are limited, and there are turns to test the skill of the driver, as well as grades to try the car.

About midway of the neck is a fairly straight and level course, ending at the road to Manhasset Station in a steep and winding decline skirting the grounds of Harry Payne Whitney. At the foot of this hill the road runs about level across the causeway of



OLDSMOBILE ON FIRST ROUND; MATHESON AT REST.

the old dam, two signs warning the drivers of a turn to the left and a rising hill. Once over the dam, there is a turn of a quarter circle through a little hamlet, with the pond on the left hand and a steep hill faced with houses on the right. With an easy grade for a hundred yards, the road then rises rapidly, and for a half mile there is a steep, sinuous course along the side of the hill.

All of this stretch of road was oiled and in good condition as to surface, but there was a bad spot just at the ending of the curve at the dam, two rough wagon tracks a dozen yards apart leading down to the water; on the oiled track the grade was continuous, but at the side of the road to the left these tracks made two depressions.

As this point was near the 20-mile station, the first car was expected at about 6:20, and within a minute of this time a heavy exhaust was heard and the red flags went up. The car came into view, running fast down the hill, but the intervening willows along the dam prevented a clear view, and the number was not visible until the curve was neared. There was a cheer from the crowd when a big "2" showed the Pope-Toledo taking the full racing measure of the curve for the first time. Lytle made a rather wide sweep, the gravel curling from both right wheels like the spray from the bows of an auto boat. He swung into the short straight and then took the hill at a good speed.



MR. AND MRS. WILLIAM K. VANDERBILT, JR.



THE THOMAS-HOUP BOXES.

Before No. 2 was fairly out of sight the Matheson car was on the dam, running fast. Mongini made a wide sweep, skidded and swung well to the left, going off the oiled way and bumping heavily over the two depressions previously mentioned. He failed to straighten her out before the hill was reached, and she swept up the curve in a wobble from side to side of the road. A few seconds after she was lost to sight from below, the yellow flag went up on the hill and the crowd started on a run, regardless of following cars. When they had gone a couple of hundred yards they found the Matheson upright in the ditch, heading back on the track, while Mongini, with blood on his face, was just beginning to realize what had happened, and Green, his mechanic, was rubbing a bruised leg.

The marks on the road and the stories of witnesses told the details of the accident; while running on the extreme left of the road, here about 30 feet wide, the car sheered abruptly across, over a ditch, and up the face of a terrace about six feet high. It ran for a few yards with its four wheels on the sloping surface, only its momentum preventing it from turning over and falling into the ditch with wheels upward; then the right spring caught a telegraph pole and the car, stopping short, revolved in a half circle with the pole as a center, dropping squarely on its wheels in the ditch. As it struck the pole Mongini was whirled high in the air, hitting the pole just below the crossarm and falling to the road beside the car; Green was pitched out with a lower trajectory and landed by the fence on the other side of the road.

Neither man was seriously injured; Mongini hit his head and was stunned for a short time, and Green bruised his leg. The latter took the mishap much to heart, and when he found that the left rear tire was injured, the front axle bent and that the motor would not start, he was the very picture of misfortune. Mongini accepted the situation in a most philosophic manner; after washing off the blood in a cottage nearby and satisfying

himself that further racing was out of the question, he lighted a cigar and started in to discuss the details with various witnesses.

One individual asserted that he had seen the whole incident and that Mongini flew straight up the pole until he hit at or near the crossarm, a distance of some twenty feet from the ground, but little more than a dozen feet from his seat as the car topped the bank. Mongini listened with the closest attention and several times interrogated the witness, pointing upward to the pole, "Where I went," "How high I went."

Both he and Green laid the whole trouble to the bursting of a tire within the last twenty yards which they ran, but after witnessing the skid at the lower turn and the disturbance due to the bumps in the road there, it seemed more probable that these were the real source of trouble and that, with a weak wrist, Mongini had never been able to get the car fully under control again. The tire did not leave the rim and was not badly damaged, nor was the car seriously injured. It lay in a very bad place, as the passing cars hugged the extreme inside of the curve. Efforts were made to remove it, but it was abandoned after being shoved as close as possible to the bank.

The third to take the curve was Le Blon, followed by Christie, and then the crowd began to look for the Locomobile, Tracy evidently being the favorite. Haynes went by in the spidery green car and then came the heavy-looking Thomas No. 4, with its bluntly rounded ends, driven by Callois, and close behind it came Tracy, running some six minutes or more behind his proper time. All took the turn without difficulty and held a good speed as far as visible up the hill.

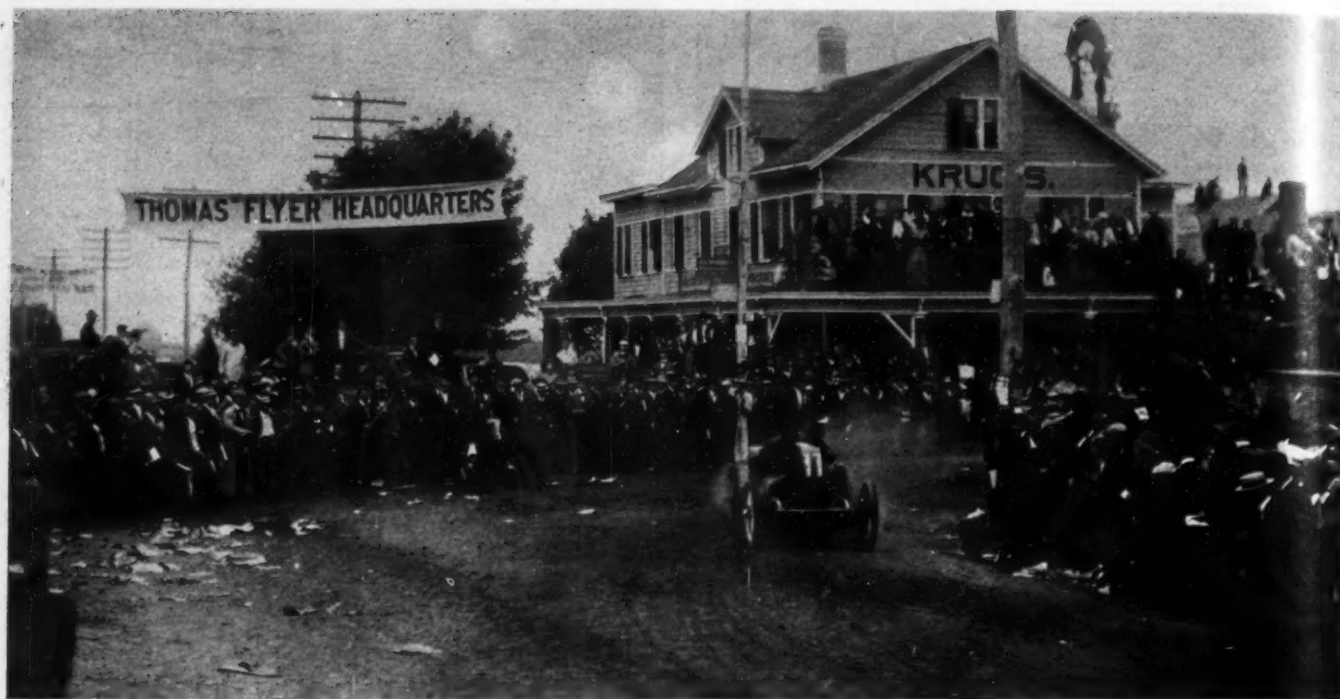
It was not until 7:45 that No. 1 made her appearance, being greeted with cheers; he was hardly lost to sight on the hill before the yellow flags fell and the crowd rushed upward, to find the carbureter on fire just by the wreck of No. 3; the flames were soon extinguished and she started on.



THE PARKING PLACE BEHIND GRANDSTAND.



ASSEMBLY OF THE POPES AND THE WALKERS.



LAWWELL OF THE FRAYER-MILLER TRIO SWINGING INTO THE JERICHO TURNPIKE AT KRUG'S CORNER.

AT KRUG'S BUSY CORNER.

By HARRY B. HAINES.

Krug's Corner was a lively spot for many reasons on Friday night, and there was but little rest for the favored ones who had reserved quarters at fabulous prices and hoped to enjoy a sleep. The crowd was an enthusiastic and a noisy one, and there was that something in the air that is sleep-destroying.

In Krug's bar-room automobile enthusiasts of all types and conditions gathered and aired their views on the coming event. Each had his own favorite, and was ready to back his choice with his money. No end of bets were made, and the gambling spirit seemed to be in the air. Outside, enterprising negroes were running wide-open crap games and fleecing the callow enthusiasts with bare-faced boldness and cleverly-loaded dice. Seven high and seven low, three-card monte, poker, and even the supposedly obsolete shell game, were worked under the glare of an electric light or a gasoline torch. There was no restriction, and the sleepy-eyed constables looked on and saw the law openly violated, but just yawned and said nothing.

Late starts from New York seemed to be the rule, and after midnight the stream of automobiles continued increasingly until the roads were made dazzlingly plain by the flashing headlights.

When the first faint flushes of the dawn began to appear in the east it was a bedraggled and tired-looking crowd that faced it.

It was just around 4 o'clock, when almost all the drinkables in Krug's place had been disposed of and the barrel into which the cash register had been emptied any number of times was about full of money, that the crowd began to sit up and take notice. The lights were still gleaming brightly in the Thomas garage, and several private racing cars had been tearing over the course, exciting interest.

People were moving about in crowds, and ambitious boys were already perched high up in the wires of telegraph poles.

Five o'clock came, and already the crowd had broken down part of the wire protections intended to keep them away from the dangerous turn, and they were piled in rows several deep, right at the very point of the turn, where they insisted on staying, even after the race began, much to the annoyance of the drivers and at the very risk of their lives.

The start had been announced for 6 o'clock, and twenty min-

utes before that hour the big door of the Krug's barn was thrown open. There were the three racing monsters, with their weirdly-dressed drivers and mechanics, ready for the start.

A man leaned down in front of Le Blon's car. He gave the starting handle a whirl, and instantly a fusillade of fierce explosions assailed the air, and a moment later the crowd fell back in a wild rush, as the dark, great juggernaut, gliding flat-bellied over the road, dipped down from the runway, whisked out on the road, slipped around the turn, and an instant later, with its motor crowding the air with the explosions of a Gatling gun, dashed off down the road to the starting place. Once more the cannonade of the engine exhaust, a whirr and a swish, and Caillois was on his way, and, again a minute later, Roberts, the young American driver, shot out after the two. The explosions of the three great motors blended into one grand air-rending roar, which gradually grew fainter until it was but a steady purr, and the big cars were gone.

The Cup Commission had arranged a novel method of letting everyone in Nassau County know that the race had started, having arranged to send up a hot-air balloon ten minutes before the start, and by shooting off an aerial bomb at the moment of the start. No one at Krug's Corner saw the balloon, but at 6 o'clock the roar of the bomb's explosion was heard, and an instant later a soft, rattling purr as the first race crossed the line nearly four miles away.

From that minute all eyes were glued up the road and everyone waited. Fifteen minutes, twenty minutes, twenty-five minutes passed, and before the thirty-minute mark had been reached the reverberations of a motor were heard, steadily increased in volume, and then down the road a little gray speck was discerned, which grew in size with lightning-like speed as the cannonade of its engine became more plainly audible. Two men, cowed and begoggled, were in it, both bending forward against the pressure of wind caused by their own motion.

With a whiz and a whirr they came down the road, skimming over the little black line of oiled space. Straight across the road, at the point of the turn, the crowd had stationed itself, and, despite the fact that a false turn of the wheel might hurl the car into their midst and kill scores of them, they refused to move, but risked death rather than miss the sight of these two men hurtling along at a terrific pace and inviting a fate equally as horrible as that which they apparently unconsciously faced. "Car

coming!" "Get back!" "Clear the course!" were the cries heard. The constables waved their red flags as the monster in gray, shooting flames from its side, came hurtling down on the turn. For a hundredth part of a minute there was a cessation of the roaring explosions, for the same infinitesimal fraction of time the great car continued, straight on toward the crowd, then as Lytle swerved the steering wheel, for it was he in the Pope-Toledo, the war-painted thing changed its course. The front wheels dug into the rather soft dirt of the turn and threw the loose gravel across the road. The back wheels skidded after, and the car balanced, as if preparing to turn over, but the clever driver corrected the tendency by a swift movement, and then the car zipped past, and in an instant was headed straight again, when the whirr of the wheels and the chains was succeeded by the mad crash of the exploded exhaust, and, with a savage roar, the big car tore down the road, leaped across the Long Island Railroad tracks, and before the first wild cheer of the crowd had died down was out of sight on its way to the grandstand. The turn was a masterful one, and was indicative of the reason why the other drivers in the race feared Lytle. His daring is proverbial.

Less than a minute later the cry of "Car coming!" was raised again, and Christie came smashing down the road. He did not shut off his engine, but went at the curve at a speed that sent a scare into the spectators, who were crowded across the road. They made a dash to get out of the way, for it looked as if the car was going to dash straight into them. At the last moment, however, Christie whirled the steering wheel and whisked around the curve, digging up the dirt, but scarcely skidding at all, and proving his claim that his car was fast on the turns. Le Blon, Belding, and Harding followed in quick succession, and made the turn without trouble, all of them slowing down perceptibly



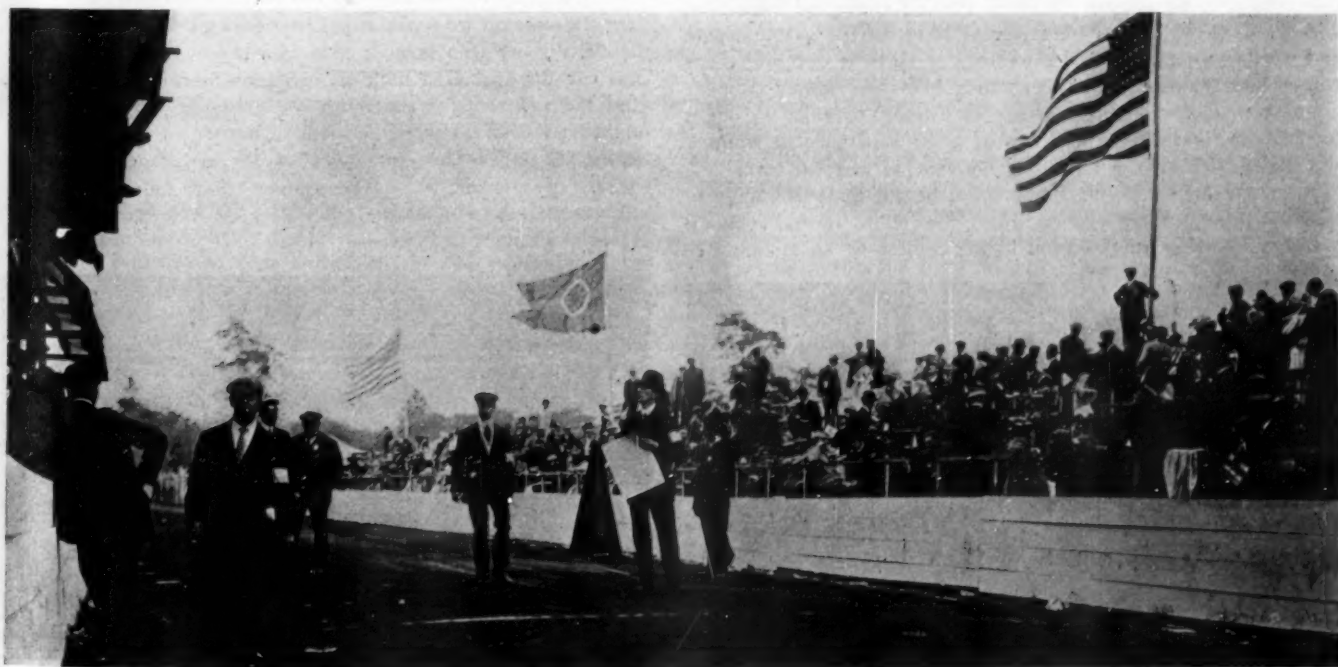
EX-CHAIRMAN MORRELL AND E. R. THOMAS.

and evidently resolved to take no chances. Next came Tracy, tearing over the roads at a terrific pace. When about 500 feet from the curve he was seen to lean forward and pull on his speed-change lever, and the increased volume of explosions told that he had gone back to his second gear, and, without shutting off his engine, he dashed at the curve, hugged the inside closely, and got around in good shape.

There was a lull then for thirteen minutes, and then Lawwell came dashing along in the Frayer-Miller. He shut off his power for the turn and got around easily, and upon starting again on the straight stretch his engine began missing and the car tore off down the road with the engine exploding irregularly. Nineteen minutes later Caillois, in the Thomas, who had been having troubles of his own en route, came down the straight road and went at the turn at a speed that seemed to presage sure disaster. The crowd dove for safety in a panic, and as the big car hit the turn it seemed to poise on two wheels and tore up the gravel fiercely, hurling pieces of dirt and stone twenty feet away. Why it didn't upset and roll over, crushing and maiming both men, was a miracle;

but it didn't, and the mad thing dashed down the road at speed.

The crowd at Krug's Corner began to thin out when it was seen that the drivers were all taking the turn cautiously, and they spread themselves along other places on the route. It was after 8 o'clock when Roberts, the young American driver, of whom so much had been expected by the Thomas people in the race, got to the turn on his first round. He had been tied up with various troubles to his car. The crowd was forced back, and the big racing machine was put in the Thomas stable and went out of the race for good. The doors were drawn, closed, and locked, and no one was allowed in, and then Roberts burst into tears and refused to be comforted.



A LULL IN ARRIVALS—THE DONOR OF THE CUP OCCUPYING THE CENTER OF THE STAGE.



THIS TIRE COMPANY SUPPLIED ALL CARS.

WHAT JOE TRACY HAD TO SAY.

When asked what kind of a race he had had, Joe Tracy replied, in his usual deliberate manner: "Oh, all right; when we passed Le Blon, of course, it looked like a sure thing for the Locomobile. In the first round we had to stop and have an inner tube put in one of the front tires that had gone flat on the turn at Old Westbury. The tube was all right, but it got pinched in putting the shoe on. It only took a few minutes to make the change at the tire station, just beyond the big turn. Then we had a close shave in another lap near the same place on the 'hairpin turn.' We were following close after Belden in the Frayer-Miller, when he stopped short with his engine dead and his brakes on. There was just room for the Locomobile to squeeze through between the other car and a telegraph pole at the side of the road.

"The course is not so fast as last year; the many turns make it slower and there is a dangerous descent near Roslyn. But the turns and hills are not so bad as they were in the last Gordon Bennett race in France, although there were longer and wider straights in the Gordon Bennett course where you could let your car out to the limit. The best part of the course to-day was on the North Hempstead turnpike, which was straight and smooth, but narrow. We made our fastest time there, but the distance was too short for much of a run before we had to slow down for the turn. Early in the race the mist made it hard to see, but it was lucky that the rain held off until after the race.

"There isn't much more to say except that the car ran well and didn't have to be nursed. I knew I could speed the engine up without danger. Flakes of solder stopped up the gasoline pipe and we had to stop for three minutes to clean it out, and there was a little trouble with the cooling, but these minor troubles are easy to correct before the race on October 6, when we ought to make faster time. Poole was of great assistance in winning the trial. Of course, we are glad we won; it was our turn."

Naturally very reticent, Tracy could be got to answer only in monosyllables any inquiries regarding the yellow journal romance woven around his participation in the contest by an imaginative



A FRAYER-MILLER RECEIVING TIRE ATTENTION.



JOE TRACY STOPS FOR A FRONT TIRE.

reporter. The fact was elicited that there was no foundation for the story of his engagement and marriage contingent upon winning the elimination trial, and that he does not know any young woman by the name of "Millicent Taylor," or variations of the name given in the different versions of the affair as published.

A SUMMARY OF THE TIRE TROUBLES.

Diamond tires were used on all the cars in the Elimination Trial, and the officers of the company express themselves as very well pleased with the showing made. There were no tire troubles, they state, that were due to weaknesses or defects in the tires themselves. A Frayer-Miller wrenched off two tires in avoiding a collision with a telegraph pole at the hairpin turn; Christie lost a tire in the same way at another curve. The Matheson car ripped off a tire just before its final crash against a telegraph pole, but the tire did not burst. Le Blon's Thomas had no tire trouble beyond a single puncture. On Lytle's Pope-Toledo one tire was punctured and one was partly torn off the rim after having been punctured and run flat. Tracy's Locomobile suffered from a pinched inner tube. Haynes had a single punctured tire, which, when removed, was found to be stuck with seven nails. There is no record of blow-outs or other troubles indicating tire weaknesses or defects.

DESIGNER RIKER THINKS CHANCES GOOD.

In the opinion of A. L. Riker, designer of the winning Locomobile, the car won because it is of a rational type and a practical car for sustained high speed on ordinary American roads. Had the race been a short one on a smooth track, the result might have been different, he thought, but with the distance practically 300 miles, the contest called for endurance as well as speed. Mr. Riker is of the opinion that American chances for winning the cup in the great race of Saturday, October 6, are brighter than they were in 1905.



THE TIRE CAMPS HAD VERY LITTLE TO DO.

ALCOHOL AS A FUEL IN EXPLOSION MOTORS*—II.

By THOMAS L. WHITE.

THE calorific or fuel value of alcohol has been estimated by a number of investigators, and as a mean value of their determinations we may take it that one pound of absolute alcohol (chemically pure anhydrous C_2H_5O), when completely burned in sufficient air, gives out 12,000 British thermal units of heat. The corresponding figure in the case of commercial denatured alcohol, containing 10 per cent. by volume of water, is generally taken as 10,000.

The calorific value assigned to gasoline is 19,000 British thermal units per pound, and it would look on the face of it as if this fuel, weight for weight, were nearly twice as efficient as denatured alcohol, since it gives nearly twice the heat. If there were question of some simple operation, like heating the air of a room, this conclusion would be a correct one; but in the explosion motor it is not the total heat *liberated*, but the total heat *utilized* which counts, and in the case of alcohol the utilized heat bears a ratio to the liberated heat which is much greater than in the case of gasoline. This advantage, which is realized in practice, is without doubt mainly due to the superior compression

or ever will be built to fill these conditions, as, among other impossibilities, its construction would call for an absolutely non-conducting cylinder wall; but, in comparing the thermo-dynamic values of fuels, it is the simplest course to consider how they would function under such ideal conditions, and to then make allowance for the conditions of actual practice.

In our hypothetical motor, let E denote the percentage of the total heat liberated that appears as mechanical work on the crankshaft. Also let R denote the compression ratio, that is, the ratio of the volumes of the air-fuel mixture before and after compression, or, what is the same thing, the ratio of the cylinder volume to the clearance space. Then, for ascending values of R and E , we have the following table:

$R =$	5	6	7	8	9	10
$E =$	47	52	55	57	59	61

In gasoline motors R lies between 4 and 6, while for alcohol the value 8 is common, 9 has been reached, and 10 is practicable. Further compression is in either case impossible, for when carbureted air is compressed beyond a certain point, it ignites spontaneously, owing to the heat of compression. If we take a mean value of $R = 5$ for gasoline motors and $R = 9$ for alcohol motors, the corresponding values for E are 47 and 59, and we may put the intrinsic advantage of alcohol, due to the higher ignition temperature of its vapor, at 59; 47 as against gasoline; but, in assigning this value, we must bear in mind that it relates to compression pure and simple, and that the reasoning by which it was deduced takes no account of radiation, heat-suppression or delayed combustion. These are complications of the ideal cycle which must be considered on their own merits. In considering their bearing on the relative efficiency of alcohol and gasoline, we shall now show that the net gain is on the side of alcohol, or, in other words, that the theoretical advantage of this fuel is more than maintained under practical conditions.

Adiabatic Expansion of Gases.

When carbureted air is compressed in a non-conducting cylinder, the pressure (p) and the volume (v) at any stage of the compression are connected by the equation.

$$pv^{1.408} = \text{constant},$$

and the operation is said to be "adiabatic." This also represents what occurs in practice in an ordinary well-designed motor, for the heat left in the cylinder wall by the previous working stroke seems just about to balance the tendency of the heat generated by the compression stroke to radiate into the water jacket.

When, however, we come to the working stroke, this correspondence between theory and practice ceases. In actual motors, the operation of combustion takes an appreciable time, which is longer for alcohol than for gasoline. Inflammation is never complete at the moment of maximum compression, and even when the fuel is all burnt, the total heat of combustion is not immediately available. Whether it be due to dissociation, to varying specific heat at high temperatures, or to heat interchanges between the working medium and the cylinder wall, or to all three, more or less heat is liberated throughout the power stroke of an explosion motor, and the amount of this so-called "suppressed heat" is greater in the case of gasoline than in that of alcohol. The equation connecting p and v for such expansions varies with the fuel and also with the design of the motor. If it be written

$$pv^x = \text{constant},$$

all we can say about x is that it is always less than 1.408, that in extreme cases it may be as low as 1.2 and that its value for alcohol is, *et. par.*, appreciably greater than its value for gasoline.

In Fig. 1, the lowest curve represents an expansion stroke ($pv^{1.408}$) in which there is neither radiation nor "suppressed heat." The middle curve ($pv^{1.2}$) is an example of an expansion

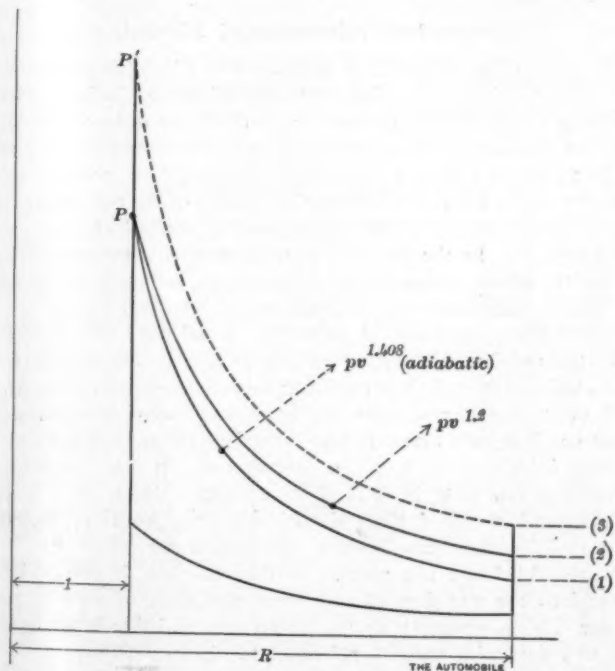


FIG. 1. (DIAGRAMMATIC).

attained in alcohol motors; but that it is entirely so due, as is generally assumed, is hardly borne out by the evidence heard before the Committee on Ways and Means on the Payne bill, in which it was stated that "A 10-horsepower engine was tested (with alcohol) in the same condition in which it had previously run on gasoline, without any change whatever, and developed 11-brake horsepower as against 10 horsepower with gasoline."

Efficiency of Hypothetical Motor.

It was first pointed out by Dugald Clerk that if we could construct a four-cycle motor, in which there was no heat interchange between the cylinder wall and the working medium during either the compression or the expansion strokes, and in which combustion was entirely conducted at the moment of maximum compression, then the efficiency of such a motor for all heat additions above the final temperature of compression would depend simply and solely on the amount or degree of that compression, and on nothing else. Of course, no actual motor has

*Continued from page 367, issue of September 20, 1906.

with extreme heat suppression. In such a case the heat which is liberated during the stroke more than makes up for radiation losses, so that curve (2) is always flatter than curve (1), the heat addition preventing the pressure from falling as rapidly as it would in an adiabatic expansion. The expansion curves for alcohol and gasoline, if drawn through P , would lie between (1) and (2), and the curve for gasoline would be the flatter of the two and the nearer to (2).

Comparison of Expansion Curves.

At first glance it might look as if expansion curve (2) was preferable to expansion curve (1), giving a larger work diagram area. But it must be remembered that the heat expended in curve (2) is greater than the heat expended in curve (1) by the amount of "suppressed heat" added during the expansion, and the point is that this "suppressed heat" is utilized in a wasteful way. Had it been available at the outset of the stroke, the initial pressure would have risen to P' , the expansion would have followed dotted curve (3), and there would have been a net work gain represented in amount by the area enclosed between curves (2) and (3).

Since the expansion curve of alcohol approximates in character to (1) while the expansion curve of gasoline approximates in character to (2), it follows, other things equal, that the heat of combustion is more efficiently utilized in an alcohol than in a

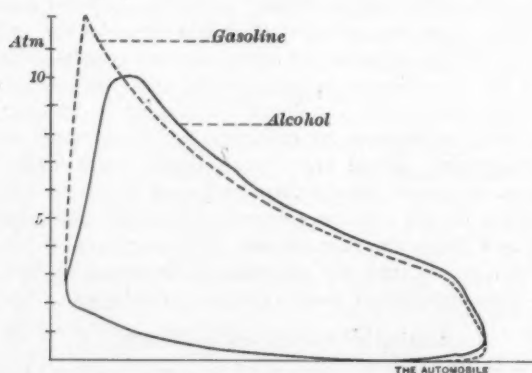


FIG. 2.

gasoline motor. In short, in so far as the phenomenon of "suppressed heat" is concerned, the advantage is with alcohol.

Fig. 2, which is due to a German source, shows an alcohol $p-v$ diagram and a gasoline $p-v$ diagram, taken from the same motor, and superimposed, the one on the other, for the purpose of comparison. The compression ratio being the same for both fuels, the area of the alcohol diagram is not so great as it would have been if full advantage had been taken of a minimum clearance volume. Neither diagram is a perfect example of its kind, but if the idiosyncrasies the two fuels represented are a little pronounced, there is a compensating gain of greater clearness in comparing them.

It should be noticed that the alcohol expansion curve is the steeper of the two, which corroborates what has already been said.

Time Occupied by Combustion.

With respect to the time occupied by combustion, the gasoline curve shows a rapid heat addition practically at constant volume, with a well-defined moment of maximum pressure. The alcohol curve, on the other hand, shows a comparatively prolonged heat addition, partly at constant pressure and partly at constant volume, the whole period of combustion covering about one-seventh of the entire stroke. This is abnormal, for the inflammation in a well-designed alcohol motor is much sharper than in the example we are considering, though never so quick as with gasoline.

The addition of heat partially at constant pressure, and partially at constant volume, is a thermo-dynamic disadvantage, and the rapid combustion of gasoline gives it in this respect a con-

siderable pull over alcohol. In fact, if the inflammation is very tardy and the proportion of the heat added at maximum pressure is considerable, the values of E given earlier in this article may be reduced by one-half for the extreme compressions usual in alcohol motors. This is, of course, a limiting case, improbable to the extent of impossibility, but the point is one which is well emphasized, for there seems to be a disposition in some quarters to regard the slow combustion of alcohol as a positive advantage.

No internal combustion engine has ever yet been constructed in which over 35 per cent. of the liberated heat appeared as useful work, the water jacket and the exhaust claiming the balance. In alcohol motors, the water-jacket loss is less than with gasoline motors, but this is probably in part due to superior compression, for it is a fact well established in gas engine practice that increased efficiency, due to increased compression, is always accompanied by a fall in radiation losses and an increase in exhaust losses. It may, however, be taken as experimentally true that the total unused rejected heat, whether through the water-jacket or the exhaust, is proportionately less in alcohol motors than in gasoline motors; and this fact, taken in conjunction with the superior compressibility of air carbureted with alcohol, is in all probability amply sufficient to offset the efficiency loss due to a slower rate of combustion. And this being so, whatever superiority alcohol may have in the matter of "suppressed heat" is all to the good.

Theoretical Advantage of Alcohol.

It is one thing to establish the existence of an advantage, and another to assign to it a definite numerical value. So far as compression considerations only are concerned, the matter is simple, and the theoretical advantage of alcohol over gasoline comes out at 59 to 47, or 1.25 to 1. This ratio is more than maintained in practice, brake tests of the thermal efficiency of the two fuels having demonstrated an advantage in favor of alcohol of 31.5 to 23, or 1.37 to 1. In the light of these figures it seems reasonable to put the actual advantage of alcohol over gasoline in the matter of thermal efficiency, all factors of the problem having been taken into consideration, at 32 to 23, or 1.4 to 1.

In the previous installment of this article, it was pointed out that alcohol vaporizes less readily than gasoline in the carbureter, and as it also burns more slowly in the motor, the practical inference is clearly that this fuel is particularly adapted for heavy motors in which the r. p. m. rate is low. If the question of governing can only be solved on automatic lines, so that no attendance is required, there should be a great future for alcohol as a fuel for stationary internal combustion engines.

In the third and last portion of this article it is proposed to enter into the question of cost from the point of view of the owner, who is weighing up the advantages and disadvantages of the new fuel with especial reference to his pocket-book.

AUTOMOBILES FOR POSTAL WORK.

Postmaster J. H. Harris, of Kansas City, Mo., office, has received orders from Washington to advertise for bids for the use of two motor cars and drivers, to serve four years after October 1. The service is to be begun on that date, provided the proposals received are reasonable. Mr. Harris has announced that four local firms had declared their intention of competing for the award.

The government is not advertising to buy motor cars. It simply wants to rent them to collect the mail from substations, of which there are about thirty, part of the delivery now being done by the trams. The motor cars are to take the place of two of the four wagons now in use for the work. All cars, under the proposal, must be either new or practically as good as new. At all times they are to be subject to the orders of the postmaster. The successful bidder must give a bond of \$3,000 and a check, duly certified, must accompany each bid. Mr. Harris believes that the work of his office will be lightened by the new arrangement and is anxious to see it in effect.

HINTS ON THE CARE OF PNEUMATIC TIRES

A TIRE inflated too much will be hard riding, but over-inflation is not the usual cause of bursts. These are usually caused either by excessive bending of the tire walls near the clinch, which gradually weakens the fabric at that point, or to "bumping" the rim in going over crossings, stones, or the like, whereby the fabric is bruised by the blow of the rim and caused after a greater or less interval to weaken and give way. Damaging the fabric may be due to the tire being too small for its load, or to insufficient inflation, as well as to careless driving. The futility of trying to save money by using small tires need only be referred to, but the requirement of ample inflation needs to be insisted on with the utmost emphasis.

Using Tires Too Soft.

Not only are bursts of various kinds due to riding the tires too soft, but the general experience is that punctures are more frequent under the same conditions, owing probably to the greater surface covered. Creeping of the tires on the rims, whereby the valve stem is torn off, is always due to under-inflation; and rotting of the fabric—itsself an infallible cause of bursts—is due to water getting in at the rim or past insufficiently tightened tire bolts quite as often as punctures. Ninetenths of automobile beginners fail to pump their tires hard enough. The accompanying table gives the pressures recommended by the Michelin and the Continental concerns for tires under various loads.

Air Pressures for Pneumatic Tires.

Size of Tire	Voiturette		—Light Voiture—		Voiture	
	Total Load on Axle	Air Pressure	Total Load on Axle	Air Pressure	Total Load on Axle	Air Pressure
60-65 mm.	220-350	.29	440-660	.36	660-880	.51
24-2.6 in.	350-530	.36	660-880	.51	880-990	.65
80-85 mm.	220-440	.29	440-660	.36	660-880	.51
3.3-3.4 in.	440-660	.36	660-970	.51	880-1100	.58
90 mm.					1100-1320	.72
3.6 in.					880-1320	.72
					1320-1760	.87
					1760-1980	.94
120 mm.					1320-1760	.72
4.75 in.					1760-2200	.87
					2200-2640	.102

The total loads in the table include passengers and all supplies. As the original metric equivalents are given in round numbers, it is evident that any handy approximation will answer for the air-pressure table.

A common reason given for failure to inflate sufficiently is fear that the pressure of the air by heating will burst the tire. This is pronounced by Michelin a mere bugaboo, and it is pointed out that even a rise in temperature of 100 degrees Fahrenheit would increase the pressure barely one-eighth, whereas the tires are built to stand fully 250 pounds pressure. The real cause of tire failure at high speed is partly the heat itself, which "softens" the cemented joints of the air tubes, and partly the strains due to harsh use of brakes and to taking curves at speed. The latter, of course, may be avoided, and should be, as the time lost in tire replacements exceeds that saved.

Use of the Air Gauge.

For inflation it is a very good plan to have a pressure-gauge pump, as no other method gives more than a rough idea of the degree of inflation. If no pump is used, a good rule is that the compression of the tire on smooth pavement should be about one centimeter (2-5 inch) and in no case over 1 1/2 centimeters. This applies to all sizes of tires.

A tire should never be driven after the canvas has begun to show through the rubber tread. If sent to the maker immediately this condition is observed, a new tread can be vulcanized on, but after the canvas begins to wear or rot, this

is impossible. The same applies to tires from whose sides the rubber has been worn by chafing against ruts or curbstones. They must be revulcanized before the fabric begins to rot, or nothing can be done with them.

Keeping Tire Bolts Tight.

Were it not for the leather or rubber washers under the heads of the tire bolt, it would be impossible to drive in wet weather with safety to the tires, as water entering around the bolts would rot the fabric. These bolts must always be kept tight.

The best way to clean the tires is with a wet but not dripping cloth, wiping them dry afterward. Though not essential, this removes dirt which might otherwise gather and hold moisture, and, more important, it exposes cuts in the cover which might otherwise pass unnoticed. Such cuts, particularly if they penetrate to the fabric, should not be neglected, but should be cleaned out with gasoline and cemented together while they are still fresh. This will prolong considerably the life of the tread.

Both gasoline and oil rot rubber if left in contact with it long. Any oil getting on a tire should be wiped off—best with gasoline. The tire should never stand in oil drippings on the floor. These are best caught in a shallow pan, which may have a little sand or sawdust in it, renewed frequently.

Keeping the Rims Clean.

If the rims become rusty, they should be cleaned with emery cloth and given a coat of enamel or lead paint. When a protective strip is used in the rim it should be kept clean. Any roughness here is liable to chafe the inner tube unless a protective flap is used in the case.

If a change is made in the make or size of tire, see to it that the right bolts are used with the new tire. The wrong bolts are worse than none, for they will not only be ineffective, but they may destroy the tire.

Non-parallel wheels, and steering knuckle connections bent or badly fitted so that the front wheels tend to travel around different imaginary centers when deflected, will wear out the tires very fast, as they necessarily drag the wheels sidewise to a greater or less degree.

The "blisters" frequently seen on the sides of tires are due to dust, and the like, getting into small cuts through the rubber and forcing it from the fabric, or forcing the layers of fabric apart. In most cases the only way to repair these is to have a new tread vulcanized on, and if the fabric has rotted badly even this may not be possible. In many cases these blisters may be avoided by promptly cementing the cuts from which they start, before water and dirt get in.

Use of Protective Flap.

The experience of tire users does not appear to have been uniformly favorable to the protective flap, so called, in some tires. If the case creeps at all, and apparently it is pretty certain to do so more or less, even with good inflation—the flap will drag on the valve stem and may tear it out, whereas without the flap a tube properly powdered will let the case creep around it without itself shifting. A good plan would be to cut away the flap for an inch or two ahead of the valve (when the latter is at the top of the wheel), to allow for creeping.

When a tire punctures, and neither a spare tube nor repair kit is at hand, it is best to take off the tire and wind a fair-sized rope on the rim to protect it till the nearest town can be reached. The rope should be wound in the direction of the wheels' rotation and the ends secured.

LETTERS INTERESTING AND INSTRUCTIVE.

The Question of Holding Compression.

Editor THE AUTOMOBILE:

[414.]—In your answer to Mr. Foley's letter, in your issue of September 20, it seems to me that your arguments in regard to starting on compression are not well founded. You say that "it is manifestly impossible that the contact, even the close contact of two oil surfaces, not especially pressed together, should hold gases at high pressure without rapid leakage." In any well-constructed engine the piston rings are probably as close as 1-2000 of an inch to the cylinder wall, under which conditions the capillary attraction in the comparatively viscous lubricating oil is enormous, requiring correspondingly high pressures to overcome its resistance. It seems to me that your expert might have taken into account the question of valve leakage, which would be a much more likely cause of the rapid loss of compression referred to in the cases cited. One well-known maker of American car that is noted for its self-starting qualities concentrates much of his attention on the valves of his engines, holding that superior workmanship at that point is the real secret of invariable self-starting.

Fort Wayne, Ind.

F. G. SCHULER.

We must admit that Mr. Schuler's points are in a degree well taken, since at least one maker of engines of high reputation claims to be able to hold compression effectively without the use of any piston rings at all, but simply substituting for them a plurality of oil grooves, with oil films in exceedingly close capillary spaces. Nevertheless it is an absolute fact, easily determinable by careful tests on the highest grade cars, foreign or domestic, that immediately after stopping the engine by cutting off the ignition, scarcely a perceptible puff of gas is emitted when the relief cocks are opened. And there is no reason whatever why an engine should not start under no load, simply by the firing of uncompressed mixture above the pistons. Undoubtedly this is what occurs in the great majority of cases, but we will be pleased to have definite enlightenment on any case where the facts are demonstrably the contrary. It might be an interesting experiment to seal in some way the valves of an engine, closing them by a water seal that would show leakage by bubbles, and then test the matter to a finality.

The Difference Between Convection and Radiation.

Editor THE AUTOMOBILE:

[415.]—Is it essential to the securing of good results that the radiator of a car be painted black? I have a car with a bright tinned radiator, which a friend of mine claims is wrong, and insists should be painted with a dull black paint, since a dull black surface conduces much more to effective radiation than does a bright surface. Is this absolutely true under all conditions, and especially when a fan is used to draw air over the surfaces?

Mexico City.

CLARENCE H. TWOMBLEY.

Differences in the finish of surfaces do have a great effect on radiation, and, according to all the textbooks on the subject, a surface coated with a dull lampblack paint may be even as much as forty times as efficient as a surface silver plated and highly polished—to take the other extreme. But the cooling efficiency of the radiator is not dependent upon radiation except to a slight extent. Radiation is the property by which a heated body gives off its heat to surrounding bodies without any actual movement of either. Consequently an automobile radiator cools chiefly by convection—that is to say, by directly giving up its heat to particles of air that pass over its surface. Practically all of the cooling effect, with an ordinary radiator, is due to convection, which is not dependent upon the finish of the surfaces. The efficiency of radiation is largely determined by the difference between the temperature of the heated body and that of the body which absorbs the heat, so radiation is especially inefficient in the conditions of automobile service, in which the radiator is hardly ever a hundred degrees hotter than the surrounding air, into which radiation would have to take place. The chief cooling effect, therefore, is gained by passing enormous bodies of air over the cooling surfaces, in this way causing the air to take up the heat.

Some Comment from Mr. Duryea.

Editor THE AUTOMOBILE:

[416.]—Your remarks in reply to Mr. Woodlock on the subject of larger wheels are to the point, but they do not go far enough. The wear which a tire will give is not strictly proportionate to its size, but is decidedly in favor of the larger. Heat is detrimental to rubber, and small wheels revolving more times per mile or per minute heat their tires decidedly more with greater danger of bursting. A large wheel revolving gets a longer contact on the ground, strikes obstacles less violently, cools off more at each revolution, and has advantages over its small rival in other ways. Many people seem to think that by increasing the cross section of the tire they can secure the good results that would be given by a larger tire of the original section. For example, the man having a 30-inch wheel with a 3-inch tire will consider making it 3 1-2 inches, but he will seldom or never consider making the wheel 36 inches and retaining the 3-inch tire. The 3 1-2-inch tire strikes more obstacles, rolls down more dust, mud, sand and snow, and therefore requires more power, while the 36 x 3, having approximately the same amount of rubber, rolls over obstacles easier, does not roll so wide a path and is therefore less likely to puncture, and presents many similar advantages. It is a strange thing that American buyers, usually ready to copy foreign features, are willing to put up with small wheels on our rough American roads, instead of demanding large wheels, at least as large as the foreigners use on their good roads. It ought to be plain to anyone that while roller skates will run on asphalt, big wheels are needed on bad roads.

G. E. DURYEA.

Reading, Pa.

There is little to add to Mr. Duryea's letter except to state that he undoubtedly is right in what he says about the tire with a large circumference being in every way more economical than the similar tire of smaller circumference. We would like to hear from others of our readers on the same subject.

Electric Lights from a Magneto.

Editor THE AUTOMOBILE:

[417.]—In my auto boat I am sparking with a magneto; would you kindly inform me if I can run some lights from the magneto either direct or through a storage battery, using the magneto to store the battery? A party here is using an Apple dynamo for this purpose, and says I cannot run lights with a magneto. If I can run lights using a magneto, either direct or through a storage battery, would you kindly give me instructions how to wire and any other information you think would assist me?

G. H. FOSTER.

Halifax, Nova Scotia.

The fact that your friend is able to run lights from a dynamo-storage battery combination unfortunately does not argue similar success with a magneto as the source of current. A magneto is not fit for charging batteries or for running lights, because its electrical output is in the form of a fluctuating alternating current, generally of low voltage, and in any case of such a character as would only give a flickering sort of an illumination with an ordinary incandescent lamp.

Who Can Answer This?

Editor THE AUTOMOBILE:

[418.]—Will you kindly let me know if there is a machine in existence called the Western steam car—two-cylinder 5 horsepower? One of the cars in question is supposed to be in London, and to have been built in the United States in 1902 by the Western Steam Car Company. What do you think would be a fair price for a car of this make in first-class condition?

J. E. KELLY.

New York City.

We are unable at the moment to find any record of an American-made steam car of the name you give, unless it was the product of an obscure concern that had a short existence in a small Western town. In any case, considering the fact that the car must have been of a now obsolete type, not built by a prominent manufacturer, it could not very well be worth much to-day, unless for some special reason, even if in very good condition. If any of our readers can help Mr. Kelly out with some detailed information, undoubtedly he will appreciate it as much as we will.

SEPTEMBER DAYS TEEM WITH CLUB ACTIVITY

Secretary Wilkinson Tells of Good Work Accomplished.

SYRACUSE, N. Y., Sept. 24.—Active work in placing road signs in accordance with the movement recently inaugurated throughout this section goes steadily on under the direction of the Automobile Club of Syracuse. The club has placed a large number of route and danger signs, which are a great convenience to both automobilists and horsemen. The route is completely mapped out between here and Cortland. Danger signs have been placed on both the big Tully hills and at the top of the steep hill leading from the west to the east road at the Onondaga Reservation; also on the Oran hills. Secretary and Treasurer Forman Wilkinson has been indefatigable in this work, having personally placed every one of these signs. The club has the material for signs between Syracuse and Oneida Castle, Pulaski, Mexico Point and Auburn. Two styles of danger signs are used, one reading "Dangerous Hill" and the others bearing the word "Danger," with an arrow indicating its direction. Throughout the county the idea is to indicate the presence of railway crossing, bad curves in the road and dangerously steep grades. It is an improvement which necessity has long demanded, and the automobilists are receiving many congratulations upon inaugurating it. The rapid prosecution of the work is due to the energy of Secretary Wilkinson, who is an enthusiast on this subject and a working one.

The Automobile Club of Syracuse now has a membership of 125, seven new members being elected at the last meeting. As the organization is wholly self-supporting it is entirely dependent for the purpose of carrying on its work upon the regular receipt of dues from its members.

"There are twice as many active automobilists in the city as appear upon our rolls," says Secretary Wilkinson. "They should all be enrolled as members of this club. Everybody, whether he owns a 60-horsepower touring car or a 6-horsepower runabout, should be with us. Those who are not members reap as much benefit as do those who are. Let everybody get aboard. We should have at least 225 members here, and we are going to try and recruit to this number during the coming year.

"It is for earnest purpose we are working. The club stands for organized opposition to unjust legislation affecting automobile interests; for the improvement of streets and highways; for the observance of the state automobile law and city vehicle ordinances. Then there's another thing. Eleven bills, taxing or restricting the use of motor vehicles, were introduced in the state legislature at its last session. That none of the measures were passed is due to the active work of the New York State Automobile Association, of which this Syracuse club is a member."

A. C. of Pittsburg Has a Run to Cambridge Springs.

PITTSBURG, PA., Sept. 24.—The recent run of the Automobile Club of Pittsburg to Cambridge Springs, Pa., was a great success, over 60 cars bearing 200 persons participating. The run was started from the clubhouse, at Beatty and Baum streets, and a leisurely gait was maintained to the destination. In the evening dinner was served at the Hotel Rider, Cambridge Springs, and special arrangements were made by the hotel management for the entertainment of the guests, musical and vaudeville features being provided. The automobile club also made arrangements for a musical quartet to precede the run by train, to assist the hotel management in the arrangement of the program.

Invitations had been sent to the Cleveland Automobile Club and the Automobile Club of Buffalo to join the Pittsburgers at the Springs, and although neither of these clubs called an official run for the occasion, a number of automobilists from both cities came and joined in the festivities of the occasion.

Pennsylvania Conference.

PHILADELPHIA, Sept. 24.—On Friday morning next several cars, carrying officials of the Pennsylvania Motor Federation and members of the state legislature, will leave this city, en route for Bedford Springs, where a meeting of the Federation has been called for Saturday. A party of Federation members will leave Pittsburg at the same time and having the same objective point. Vice-president Robert P. Hooper will head the Quaker city delegation, which will include several members of the state legislature. Each detachment will pick up additional carfuls of Federationists in the principal towns through which they pass.

The object of the Bedford conference is the devising of ways and means of making a

start in launching the Philadelphia-Pittsburg highway project. The trip to and from Bedford, it is hoped, will prove an object lesson to the Federation's legislative guests, and will result in a liberal appropriation when the law-makers gather in Harrisburg next session. There is a fruitful field for highway improvement in the old Keystone State.

Oquaga Cup Tour of the Binghamton A. C.

BINGHAMTON, N. Y., Sept. 24.—Plans for the Oquaga Cup tour from this city to New York, under the auspices of the Binghamton Automobile Club, have been perfected, and it is expected there will be a large entry list, as the run will terminate on October 4, in time to give the participants a day of rest before going to witness the Vanderbilt Cup race on Long Island, October 6. The tour will start from Binghamton, October 2, in three divisions, at 7:00, 7:30 and 8:00 A. M. respectively, and will make



KANSAS CITY AUTOMOBILE CLUB AT PAOLA, KANSAS.

Paola's citizens taking a look at the cars taking part in the recent endurance run to that typical and picturesque western town.

divisions, at 7:00, 7:30 and 8:00 A. M. respectively, and will make 106 miles to Pine Hill the first day. The second day's run will be to Poughkeepsie, 58 miles from Pine Hill, and the second night will be spent there. The third and last day's run will be from Poughkeepsie to New York, a distance of 76 miles, the run terminating at Central Bridge at 4:15 P. M.

The Binghamton Automobile Club has under consideration the placarding of roads in Broome County with danger signs and warnings, and has practically decided to purchase 100 signs and place them where they will do the most good. The matter will be officially acted upon after the Oquaga Cup tour has been held.

Chicago Clubs All Busy with Fall Plans.

CHICAGO, Sept. 22.—The auxiliary association of the Chicago Automobile Club, which has in hand the construction of the new home in Plymouth court, was busy during the week arranging details and receiving bids from the contractors. Contracts will be awarded this week, it is believed, and then the work of actual construction will start and be pushed along as rapidly as possible. So interested has the club been in its proposed building operations that it has not attempted to promote anything on its own hook, and it is hardly probable that any attempt will be made to run off the Temple Cup tour, which had been planned for October and which was to go from Chicago to Milwaukee, to Rockford, and then back to Chicago. When the club gets into its new home it proposes to take an active interest in the promotion of motoring events and the calendar next year will be a lengthy one, it is said.

The Chicago Motor Club held a meeting of its board of directors on Thursday evening of the present week and took in sixty members. It announced that it has secured headquarters at the New Southern Hotel, and that from now on it intended to participate in all the motoring functions that come along. Its first stroke was to receive returns from the Vanderbilt eliminating trial yesterday morning, which were read aloud to the members who assembled at the New Southern to follow the big race through the telegraphic messages. The first club run of the new organization will be held Sunday, September 30, when the members will join the dealers in an excursion to Crown Point to map out the course for the one-gallon economy test, which will be conducted in October, under the joint auspices of the Chicago Automobile Trade Association and the Chicago Motor Club.

Twelve motorcyclists, out of twenty-three starters, finished with perfect scores in the 300-mile, two-days' endurance contest promoted by the Chicago Motorcycle Club, the first event of the kind to be held in the West. The route passed through Aurora, Elgin, Waukegan, Milwaukee and back to Chicago, and the speed of the riders was regulated by the speed regulations of the communities through which they passed. Owing to the large number of perfect scores made, the cup will not be awarded yet, but each clean-score man will be given a special prize. In the near future a special contest will be arranged, in which the twelve will fight off the tie and settle the claims to the cup.

The large number of perfect scores brought forth the remark that the course was too short for a real test over good roads, and it is probable that the next event of the kind will be held under more stringent rules. The event was run off under the sanction of the Federation of American Motorcyclists.

Detroiters to Improve Their Park Road Surfaces.

DETROIT, MICH., Sept. 24.—What course to take in order to protect the city's boulevard system from the results of automobiling is the question that has been causing no little worry to the Park and Boulevard Commissioner and local automobilists, the Detroit Automobile Club taking a special interest in the matter.

Detroit has approximately fifteen miles of as fine boulevard roadways as can be found in the country, aside from Belle Isle, where there is as much more mileage.

All these roadways are macadam. The rest is a matter of common knowledge to the user of a machine who has come in contact with such highways. Dry weather, despite frequent sprinklings, brings clouds of dust that rob riding of much of its pleasure. To further complicate the situation, testers for the various automobile concerns are permitted to use the boulevard and island in trying out machines. This not only adds to the drawbacks experienced by those on pleasure bent, but imposes a heavy burden on the city annually for repairs to the roadways destroyed by steady driving.

With a view to obviating this difficulty, manufacturers and users of machines, in conjunction with the Park Commissioner, have taken up a campaign that promises to end in the treatment of the entire system of roadways with a preparation that, while eliminating dust, preserves the surface of the road. Already considerable stretches of the boulevard have come in for treatment, and so well pleased with results are members of the Detroit Automobile Club, and others, that every effort is being put forth to secure the financial assistance which will make further extensions possible.

Largely through the efforts of members of the Automobile Club of Detroit and local automobile manufacturers good roads are assured for Wayne county. At a special election last week the question of adopting the county road system was overwhelmingly endorsed, both in the city and rural districts. As soon as possible all the principal highways leading out of Detroit will be taken over by an appointive commission and constructed of crushed stone. The state pays \$1,000 toward each mile of road thus built, the remainder being raised by a general tax.

New Jersey A. and M. C. Will Hold Election Day Meet.

NEWARK, N. J., Sept. 24.—Plans are now in process of development for the Election Day race meet of the New Jersey Automobile and Motor Club, which will be held at Weequahic Park, Waverly, November 6. More outside talent will participate than at the Labor Day races, and one of the interesting features announced for the meet by Chairman J. W. Mason, of the race committee, is an attempt upon the mile track record by the 8 or 12-cylinder Maxwell Vanderbilt Cup racers. There will undoubtedly be a large list of local entries, as rivalry is great among local automobilists and dealers as to the respective merits of their cars.

Formal opening of the new clubhouse of the New Jersey Automobile and Motor Club will take place on October 13. Everything that goes to make up an up-to-date clubhouse has been purchased, the furniture has been ordered and will be assembled in the club at an early date, so that the building will be ready some little time before the opening date. There will be an automobile parade on the afternoon of the formal opening. The autoists will rendezvous in front of the new clubhouse, and the procession move up Broad street to Belleville avenue, to Washington avenue, to Elwood avenue, and through the latter thoroughfare to Branch Brook Park, to Park avenue, up Park avenue to Grove street, thence to Clinton avenue and down to the club. The cars will move along slowly, thus eliminating speed, which has a tendency to spoil the appearance of the parade. The procession will leave the club about 3 o'clock and is scheduled to return to the clubhouse at 6 P. M., where the automobilists will have a dinner, and the club then will be formally opened and turned over to the house committee, which is composed of W. I. Fisk, chairman, Jacob H. Dawson, Job P. Angell, Dr. F. B. Meeker and George Paddock. Upward of two hundred automobilists are expected to participate in the parade. Invitations have been sent to motorists all over the state, and present indications are that the affair will eclipse all others.

CLUB DOINGS IN GENERAL.

SPRINGFIELD, ILL.—The Automobile Club of Springfield will make a tour starting September 29 to Chicago and into the lake region of Wisconsin. Thirty cars are expected to participate in the run, and hotel and garage accommodations have been secured in Chicago by Secretary Gorham, of the A. A. A.

KANSAS CITY, Mo.—Active preparations are being made by the Kansas City Automobile Club for automobile races to be held at Elm Ridge on October 3 during the carnival. It is said that A. C. Webb will drive the big Premier air-cooled racer, while the Pope-Toledo, that took part in last year's Vanderbilt Cup race, will be among the contestants.

LINCOLN, ILL.—The first annual meeting of the Lincoln Automobile Association was held September 10, and the following board of officers was elected for the ensuing year: President, L. W. Walker; vice-president, William Bates; secretary, Robert M. Berry; treasurer, Wm. Fogarty, Jr.; directors, L. W. Walker, Ben. F. Coffman, and Charles L. Hyde.

GRAND RAPIDS, MICH.—There is plenty of work cut out for the winter season by the Grand Rapids Automobile Club. At the October meeting the plan for road improvement in the vicinity will be submitted by the committee in charge. It is proposed to extend the old Robinson road as far as Reed's lake, and to improve the Grandville and Cascade roads. The club will also consider the project of placing signboards on all the highways in the county.

RICHMOND, IND.—When it comes to good roads matters, most automobilists believe in object lessons. The officers of the Wayne County Automobile Club, of Richmond, Ind., invited the city officials to take an automobile jaunt about the city streets. The city officials accepted, and it is said that as a result a number of road improvements will be made. The dust of ten miles of city streets made such an impression on the powers that be that the dust-laying problem is in imminent danger of a vigorous attack in the near future.

JOPLIN, Mo.—Permanent organization of the Joplin Automobile Club was effected September 11 at a meeting held in the rooms of the Commercial Club, with the election of the following officers: President, P. Christman; vice-presidents, Bendelari and Charles DeGraff; secretary, Dr. Charles A. Morsman; treasurer, T. W. Cunningham. Membership will be limited to 200 and to residents of Jasper County, Missouri, and Cherokee county, Kansas. The charter membership of the club is 51. Membership in the American Automobile Association will be applied for.

SAN FRANCISCO, CAL.—The Automobile Club of California, which is a state organization, has accomplished much for the cause of automobiling and automobilists on the Pacific slope during its existence. One of its greatest achievements is the securing of the new boulevard leading out of San Francisco, the work on which is well under way, and which, it is expected, will be completed by the first of the year. The club has done work through its influential officers that could not have been otherwise accomplished without the expenditure of thousands of dollars. The officers have been in a position to bring out good results from the political situation and to get concessions that no other body of men could secure.

THE PEOPLE WERE WITH THE CLUB.

In the recent endurance run of the Kansas City Automobile Club an incident occurred which showed very plainly the temper of the Kansas suburban resident. The day before the run was made the committee in charge received a letter from the prosecuting attorney of Johnson county, Kansas, through which a part of the route lay. That official wrote to state that he would station men

at intervals and establish speed traps for the automobilists and gave other evidences of unfriendliness in his letter. Wishing to avoid any unpleasantness with the local authorities, the committee had made up its mind to make a change in the route, when a committee of farmers and citizens of Olathe, which was the home of the prosecuting attorney, called up the Automobile Club by telephone and asked the committee not to alter the route under any circumstances. They guaranteed that nobody would come to grief and insisted that the run be made around the Olathe square, in the middle of which is situated the courthouse and, incidentally, the office of the prosecutor. There was a cordial reception in the town and no single case of molestation was reported. The people simply insisted on a square deal.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

- Sept. 22-29.....—First National Automobile Parts Show, First Regiment Armory, Chicago; A. M. Andrews, Secretary, 184 La Salle Street, Chicago.
 Dec. 1-8.....—Seventh Annual Automobile Show of the Automobile Club of America, Grand Central Palace, New York City, under the patronage of the American Motor Car Manufacturers' Association.
 Jan. 12-19.....—Annual Automobile Show of the Association of Licensed Automobile Manufacturers, Madison Square Garden, New York City.
 Feb. 2-9.....—Chicago Automobile Show, Coliseum and First Regiment Armory. S. A. Miles, manager, 7 E. 42d Street, New York City.
 April 6-13.....—Montreal, Canada, Second International Automobile and Sportsman's Exhibition. R. M. Jaffray, manager, 309 W. Notre Dame Street.
 March 9-16.....—Boston Automobile Show, Mechanics' Hall and Horticultural Hall, Boston Automobile Dealers' Association.

Tours.

- Oct. 1-2.....—St. Louis, Mo., Automobile Parade and Carnival, St. Louis Automobile Club.
 Oct. 2-6.....—Endurance Run and Tour of the Binghamton (N. Y.) Automobile Club, to New York and the Vanderbilt Cup Race.
 Oct. 4.....—Omaha, Neb., Automobile Floral Parade, XX Ak-Sar-Ben Annual Festival.
 Oct. 6.....—Tacoma, Wash., Automobile Day of the Tacoma Automobile Club at Puyallup Valley Fair.
 Oct. 20.....—Philadelphia, Pa., Cross Country Run of the Philadelphia Automobile Club.

Race Meets and Hill Climbs.

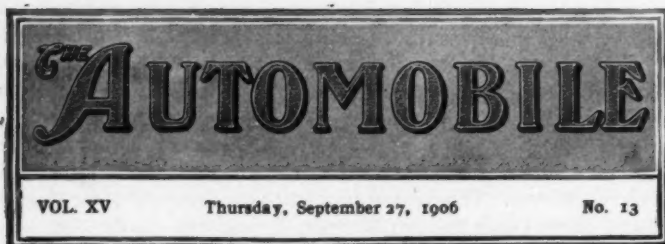
- Oct. 6.....—Vanderbilt Cup Race, American Automobile Association.
 Nov. 6.....—Newark, N. J., Weequahic Park, Waverley, Election Day Race Meet of the New Jersey Automobile and Motor Club.
 Nov. 29.....—Riverside, Cal., Thanksgiving Day Hill Climb, Box Springs Grade Hill.
 Jan. 22-26.....—Ormond-Daytona (Florida) International Race Meet, Florida East Coast Automobile Association.

FOREIGN.

- Oct. 5-14.....—Leipzig (Germany) Exhibition, Krystall Palast.
 Nov. 1.....—New Zealand International Exhibition opens at Christchurch.
 Nov. 1-16.....—Berlin (Germany) Automobile Exhibition.
 Nov. 15-24.....—London Olympia Motor Show.
 Nov. 23-Dec. 1.....—London Stanley Show, Agricultural Hall.
 Dec. 7-23.....—Paris, Ninth Annual Salon d'Automobiles, Grand Palais.
 Dec. 15.....—Calcutta, India, Exhibition of Automobiles, etc., Automobile Association of Bengal.

Race Meets, Hill-Climbs, etc.

- Sept. 27.....—Tourist Trophy Race, Isle of Man A. C. of Great Britain.
 Oct. 7.....—Chateau Thierry (France) Hill Climb.
 Oct. 23.....—Gallion (France) Hill Climb.
 Oct. 30.....—Start from Paris of the Gordon Bennett Aeronautical Cup Race.



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Pertinent Lessons of the Elimination Trial.

Once again the road race, held on Saturday, has proven that, other things being equal, the machine which is in a state of preparedness, ready to race, will win. This is a very simple and very familiar proposition and undoubtedly its familiarity is the reason that it is not seriously considered until all the returns are in. All sorts of deductions might be drawn from a race of this sort from a mechanical viewpoint that would be interesting but not very instructive; for to reach a sound conclusion as to the merits of any system or apparatus would mean that all the parts of a machine worked to the limit of their capacity and that failure to function was not caused by inattention or improper adjustment.

It is an open secret that hardly any of the competing cars were properly tuned up before they started and after the start there was certainly neither time nor opportunity to do the things that had been left undone. Delay in getting the machines out of the shops on the road was primarily responsible for this, and yet not all together. As compared with his French competitor, for example, the American builder is at a serious disadvantage in trying out his cars on the road. Even if it were legally possible to use the highways for this purpose, there are no highways to use in the vicinity of the great majority of shops. The car that won the trials was never extended in practice until a few days before the race, and then only on the course in the early mornings, and, if we are not mistaken, the same handicap affected the running of all the high-powered cars. There is no possibility here, as on the continent, to take a machine out into a remote district and try it out on good roads where vehicles are few and can easily be passed. There is a good lesson in the results for the owner of the touring car to take to heart, and that is to get his car into

condition before expecting a proper performance on the road. He is not held back by excessive speeds and small road clearances from making an adequate tryout—the legal limit is sufficient for the purpose.

It is gratifying to those who advocate road racing for the practical lessons it teaches that the winning cars are of sound design and do not embody any freak ideas; finding their counterpart in regular touring models, though of course of lesser power. The design that will stand up under the tremendous strains of road racing is very likely to meet the more moderate needs of the tourist.



The Other Side of the Story Should Be Told.

While it is undoubtedly true that there are chauffeurs, and even owners, who drive their automobiles through city streets without proper regard for the safety of pedestrians, there is another aspect of the matter that is not so often referred to. Pedestrians are often extremely careless, to say the least, and not infrequently invite disaster. Everyone is familiar with the man who, wrapped in thought, steps into the road and starts across with his eyes on the ground. There is the flighty young woman whose conversation with her friend is continued while she backs into the road without looking where she is going. Then there are the people who suddenly appear from behind surface cars or around vehicles standing at the curb; and last, but not least, the children who play heedlessly on the streets. But the automobilist or chauffeur who pleads "careless pedestrianism" as the cause of an accident is usually looked upon as trying to wriggle out of the scrape by blaming someone else.

The assertion of the anti-automobilist that pedestrians have a right to walk in the road if they so choose, may be true; but it is also self-evident that no pedestrian has a right to put the driver of an automobile in a position of a homicide. And no matter how careless a pedestrian may be, it is just as unpleasant for the driver of the car, if an accident occurs, as if the pedestrian was the most cautious of men. An hour's automobile ride through the streets of any city will convince the most skeptical that the fault for accidents does not necessarily rest on the automobile driver, and that it is little short of marvelous that more careless pedestrians are not run down every day.



What the A. A. A. Law Committee Will Suggest.

Though the sessions of the various state legislatures are several months away, the Law Committee of the A. A. A. is carefully outlining an automobile law which will be offered from the automobilists of the country as acceptable legislation under existing circumstances. That there should be a sane and reasonable basis for an automobile law, as well as for any other statute, is not a subject wherein any doubt should exist, but the automobilist should have something definite to suggest when the avalanche of winter legislation is set in motion. While the ideal law which the A. A. A. committee intends to prepare will not be possible in most states, as few modifications as possible should be fought for in this effort to obtain a start towards uniformity in the automobile laws of all states. First of all, there should be the most determined kind of an effort to bring about reciprocity in the matter of registration.

A well displayed number should be carried on all automobiles—law-abiding owners have no objection to this requirement—and the state designation should also be prominently exhibited. Dirt covered and purposely greased signs should be a reason for a penalty. It is more for the protection of the sane driver than for anything else that there should be no question about the identification of any motor-driven vehicle; but one registration should be sufficient for the entire country. The greatest inconvenience of touring—and utterly unnecessary and ridiculous—is the requirement of a number for nearly every state.

RIGOLY WINS AUVERGNE CUP.

PARIS, Sept. 18.—Rigoly, who tried and failed in the Grand Prix, carried off the honors in the 1,000-kilometers touring contest for the Auvergne cup, in the picturesque mountain district rendered famous as the scene of the last Gordon Bennett contest. His machine was a Gobron, a four-cylinder touring vehicle, registering 2,400 kilograms with its full equipment of passengers. Second, third and fourth positions were all won by Gobron machines, with Dureok, Faroux, and Jean Gobron as their respective drivers, against a formidable array of the best French makes.

The competition provided for six classes of machines, from four cylinders of 140 mm. bore and 2,400 kilograms weight, down to tricars of 250 kilograms weight, and motorcycles registering more than 75 kilograms. The fifth class, all machines giving about 40 horsepower, united the largest number of starters. In each section a minimum speed had to be attained to avoid penalty points, but the fastest times alone decided the winner in both category and general classification. Starting from Clermont-Ferrand, the capital of Auvergne, five daily journeys of about 200 kilometers each had to be accomplished, all of them over mountainous roads with splendid surfaces, but with gradients that called for the best in the machines, and demanded much skill on the part of the drivers. There were 32 starters and 22 finishers, a creditable proportion over such difficult roads at speeds of 40 miles an hour.

Among the party, but not taking part in the competition, were two Americans, Walter Lange and Mr. Frank, secretary at the United States embassy, in a small two-cylinder machine, their object being to follow the competitors around and enjoy the country. When the prizes were awarded at Clermont-Ferrand, a commemorative medal was presented to the Americans for their "splendid spirit of tourism."

The general classification of the result in its respective order of finish was as follows:

Car.	Driver.	Time.
1. Gobron	Rigoly,	17:19:35
2. Gobron.	Dureste,	17:50:16
3. Gobron.	Faroux,	18:28:51
4. Gobron.	Jean Gobron,	18:33:23
5. Brouhot,	Feuillet,	19:47:20
6. Gobron,	Baron Eynard,	20:01:11
7. Rochet-Schneider,	Hamelin,	20:18:43
8. Herald,	Dubois,	20:26:18
9. Brouhot,	Marechal,	22:24:07
10. Brouhot,	Souchat,	22:37:20
11. Brouhot,	Briand,	23:19:34
12. De Dion-Bouton,	Pellson,	23:43:37
13. Darracq,	Sire,	24:03:05
14. Cottin-Desgoutter,	Fraignac,	24:24:41
15. Cottin-Desgoutter,	Deydier,	24:56:23
16. Peugeot,	Ferret,	26:46:13
17. Sezaine-Naudin,	Sezaine,	28:53:47
18. Bruneau,	Sinde,	28:59:37
19. Motori Contal,	Pone,	30:28:50
20. Lacoste-Battman,	Maringue,	33:50:21
21. Peugeot,	Dr. Chauve,	35:46:32
22. Rochet-Schneider,	Chavanne,	36:34:07

THE PARIS SALON.

It has been decided to include in the Paris Automobile Salon next December a retrospective cycle exhibition. Recognizing that it is from the bicycle that the present perfect type of automobile has been developed, an effort will be made to show this evolution by grouping together machines typical of the different stages passed through. An appeal is made to persons possessing machine of historic value to lend them for exhibition at the Paris Salon, and already a number of responses have been made, among them being a rare and curious machine of the early cycling days from the president of the Touring Club of France.

Demands for exhibition space close on September 20. Up to the present date applications received show an increase on any previous year.

The supervisors of Muskegon County, Mich., have decided that the county roads need some improving, and have resolved that the roads of this county shall be the best in the state. They have decided to raise \$32,715 for the purpose of improving the highways.

THE CHICAGO PARTS SHOW.

CHICAGO, Sept. 24.—Component parts enough to build many automobiles, but not a single complete car, were in view at the First Regiment Armory, Chicago, on the occasion of the opening of the first national automobile parts show. The exhibition opened on Saturday evening, September 22, and will run for a week.

As an additional attraction, part of the hall is devoted to moving pictures of famous automobile races, and these attract great interest. On the opening day, which was the day of the Vanderbilt Cup elimination race, arrangements were made for the posting of bulletins in the hall so that the visitors at the show would be kept informed as to the progress of the race.

Though there were no complete cars in the hall, there were many outside, used by the enterprising dealers as demonstration cars to show the advantages of their specialties. These were kept busy carrying loads of interested persons. About a hundred manufacturers and dealers had their goods on exhibition. Among the special features of the show are the club nights. General Manager A. M. Andrews announces that the Chicago Automobile Club will have Wednesday night, when half the gate receipts will be donated to the club's building fund. Thursday night will be the property of the Austin Automobile Club, while the Chicago dealers will claim Friday night. Saturday night will be set aside for the genus chauffeur, and there will be a voting contest for the most popular member of the guild, each purchaser of a ticket being entitled to a vote. The chauffeur who gets the most votes will be pressed to accept a gold watch.

The management expressed satisfaction at the attendance on the opening night and at the interest shown in the exhibits. Music is furnished every afternoon and evening by the Seventh Regiment band.

BOSTON DEALERS HAVE ANNUAL OUTING.

BOSTON, Sept. 24.—The Boston Automobile Dealers' Association, the organization which conducts the automobile show in Boston, held its annual fall outing Wednesday afternoon and evening at the Tudor Farm Motor Club in Sharon. About thirty members of the association and their friends made the trip to Sharon in nearly half as many cars, the start being made from the Bay State Automobile Association clubhouse on Dartmouth street about 2 o'clock. Between the time of the arrival of the cars at the Tudor Farm Club and 6 o'clock there was an informal reception. At dinner President J. H. MacAlman, of the association, presided, with E. A. Gilmore and George H. Lowe, of the show committee, on either side. The after-dinner exercises were informal in character and nearly everybody was called upon to contribute remarks. A feature of the occasion was the send-off given E. A. Gilmore, who has resigned as manager of the Rambler branch to accept a position with the White company in New York. Late in the evening the return trip was made to Boston.

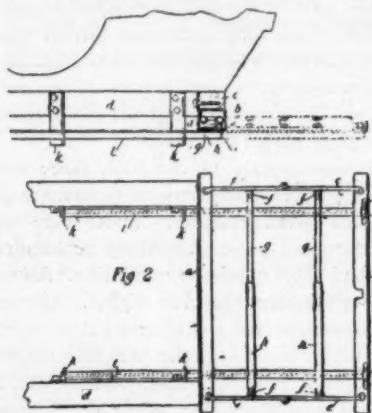
BOSTON SHOW DATES ANNOUNCED.

The Boston Automobile Dealers' Association announces that the fifth annual automobile and motor boat show will be held in Mechanics' Building and Horticultural Hall March 9 to 16, inclusive. Applications for space should be made to Chester I. Campbell, general manager, 5 Park Square, Boston. The entire Mechanics' Building has been secured, including Paul Revere Hall, and plans are being made to make the show the best and largest yet held in the city of Boston.

As a result of representations made by the Imperial Automobile Club of Germany, Chancellor von Bülow has directed the customs administration to lighten the restrictions placed upon foreign automobiles touring the country. Interior custom houses may extend the passes granted for limited periods at the frontier, and passes will be given upon less exacting requirements.

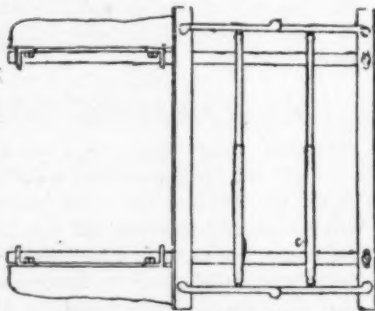
A NEW FRENCH LUGGAGE CARRIER.

PARIS, Sept. 2.—A new luggage carrier, which has the advantage of being instantaneously folded out of sight so as to in no way impair the beauty of the car body, has just been put on the market by Mestre & Blatzé, of Rue Brumel, Paris. The S. F. A. carrier, made entirely of forged steel, consists of a wooden cross



PLAN AND SIDE ELEVATION.

section in the shape of a cornice piece bolted to the rear of the body. To this are hinged two steel arms, each one of which has a hinge allowing it to fold up on itself. The two arms are united at their outer edge by another wooden cross piece similar to the fixed one secured to the bodywork. In the illustrations given *a* and *b* are the two wooden cornice pieces, *d e f g* are the side arms, partly folded up, and *q q* are the grooves on which the apparatus slides. To give further solidity *d* and *e* and *f* and *g* are united by steel tubes, telescoping one into the other. And to give further strength and prevent side movement a steel bar *t* is attached to a point *v* a few inches up the side of the car and to the extremity of the carrier. The side arms *t* are detachable, and when not in use enter grooves provided for them under the chassis. To put the apparatus out of use all that is necessary is to disconnect the two arms *t*, fold inwards the hinged bars *d e f g* and push the whole apparatus toward the body of the car until *a* and *b* touch one another. The nature of the material employed gives the carrier sufficient strength for all ordinary use, while the small compass into which it folds prevents it from detracting from the rear lines of the car.



CARRIER OPENED OUT FULLY.

THE A. L. A. M. STANDARD SCREW.

The A. L. A. M. standard screw is a new standard evolved from the old U. S. standard, using the latter as a basis. There is nothing revolutionary in its adoption, as it merely conforms to the general practice of many machine tool and automobile builders in establishing a standard in constructive material. A finer thread than that used in the U. S. standard has been found necessary, but, like any new standard, it cannot be expected that it will be immediately or universally adopted, but it is believed that it will gradually come into use.

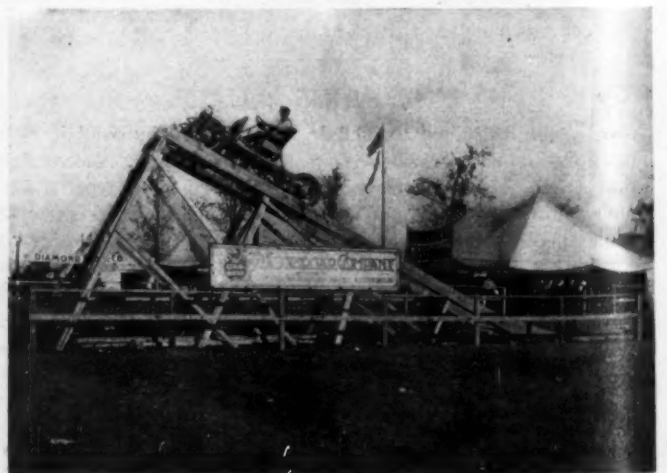
Considerable study was put on the dimensions of the nuts and heads, and careful destructive tests were made before the standard was adopted, so as to prove to a certainty that the nuts and heads were large enough and that the threads would not strip. These tests were made with ordinary material and with the material it is proposed to use for automobile work, and the results were the same in both cases—the screw broke at the base of the thread inside the nut. The material to be used in A. L. A. M. plants in automobile work (and which can be easily worked in automatic screw machines) is said to be about twice as strong as ordinary screw stock, and very much tougher, being lower in the impurities and showing a very fine fracture, a characteristic of tough steel.

GOVERNMENT TESTS OF SPOKES.

During the past few months the Forest Service division of the Department of Agriculture has been conducting a series of tests on vehicle woods, the tests being made on three manufactured parts, spokes, wagon poles and axles. The tests on spokes are of much interest to the automobile world. Material was furnished by wagon companies and wheel manufacturers, and the tests conducted at the timber-testing station of the Forest Service at Purdue University, Lafayette, Indiana. One series of these tests has been completed, but all of the data is not yet ready for publication.

The material tested was of the grades in common use. Buggy spokes were of the grades A, B, C, D, E, and culls, for the sarven wheel. In this selection, the primary object was to determine whether the grading system was compatible with the strength and toughness of the spokes, and also to ascertain the relative strength and toughness of white and red hickory spokes. Five hundred spokes constituted the series. The poles were of two grades of oak and one grade of southern pine. Part of the common oak poles were trussed. Forty poles were tested. The axles were of hickory and maple of three designs, thimble, skein, thimble-skein trussed, and long-sleeve-skein trussed. There were eight axles of each species and each design, making forty-eight in all. The object in this series was to obtain the comparative strength of the two woods and of the different constructions.

The results from the spoke tests show more than 50 per cent. error in the present grading system, which is largely due to the traditional prejudice and consequent discrimination against red hickory. No red spokes are now allowed in the A and B grades, yet these tests show that a large proportion of the red spokes now included in the lower grades should be, because of their strength and toughness, included in the highest grades. The resilience factor, which is determined by maximum load and toughness, varies directly with the weight, showing that the best criterion for judging the utility of spokes is the weight. It is also shown by the tests that, weight for weight, the red and mixed spokes are fully as strong as the white ones. Of defects serious enough to affect the strength, those near the center of the spokes are considerably more damaging than the defects near the ends. A study of the tested spokes as they now appear at the Purdue University laboratory would give much practical information to commercial graders. These tests will be supplemented by another series on spokes manufactured of sound dead hickory, which occurs in considerable quantity in the South and is not now used for this purpose.



TESTING THE CLIMBING QUALITIES OF THE CARTER CAR.

The car is shown climbing a grade of 50 per cent. at the state fair recently held at Detroit, Mich. The incline was so steep that the wheels would not hold until the timbers were dressed with a friction-producing fluid. This machine is fitted with a friction transmission.

THREE NEW NATIONAL MODELS FOR 1907.

INDIANAPOLIS, IND., Sept. 24.—Some interesting innovations are to be shown in the 1907 models of the National Motor Vehicle Company, of this city, now nearing completion. While formal announcement has not been made, it is generally understood that next season's line will include five models. This, in itself, is a decided departure from National methods, as the company made but two models this season. One of these was a four-cylinder and the other a six-cylinder touring car. So successful have these been, it is stated, that they will be continued in 1907, practically unchanged.

There will be three new models, however, that will contain several features new to National construction. They will be higher-powered, better constructed and higher-priced than the present season's models. The company will also build its own engines for these models, the motor being designed in the National factory. In order to make room for this added feature of its business, a plant containing 13,200 square feet has been leased within a few squares of the present factory. The new plant is to be known as National factory No. 2.

The National motor will contain more annular bearings than the contract engine the company has been using in the past, and which will be continued in the old models. It will have seventeen bearings of the annular type throughout. The engine shaft and camshaft will have ball bearings, while annular bearings will be on the crankshaft. There will also be two complete ignition systems, and the intake and exhaust will be placed on opposite sides. Instead of packing in the water, intake and exhaust pipes, ground and tapered thimbles will be employed.

The first of the new models will be a four-cylinder touring car, to sell at \$3,500. It will have the new motor and will seat seven passengers. The wheelbase will be 112 inches and the body will be of aluminum. Tires will be 34 by 4 1-4 inches, front and rear. The engine used on this model will have a rating of 45-50 horsepower.

Another new model, which will sell at \$5,000, will be a six-cylinder touring car, using a motor of similar type, and also seating seven passengers. There will be seven annular bearings on the crankshaft, one being placed between each two cylinders. The engine will be rated 70-75 horsepower.

The third of the new models will be a four-cylinder runabout, modeled either after the new or old four-cylinder car. The price on this car has not been fixed.

MATHESON'S NEW YORK STORE.

The new Matheson headquarters in New York will be a fine example of a modern automobile building when finished. Reinforced concrete construction will be employed, and the building will be five stories in height, exclusive of basement. The walls and foundations will be so planned, however, that three more stories can be added to accommodate increasing business. The building will be fireproof throughout. On the upper floor, which will be lighted by huge skylights, will be the repair and machine shop, while the lower floors will be used for car storage, show-rooms, offices, and so on. The first floor will have a mezzanine gallery with an ornamental bronze railing, and will be particularly handsomely fitted up. There will be in the building two great elevators with a lifting capacity of about 12,000 pounds each, and there will be a turntable on each floor. The general offices will be on the second floor. It is expected that the place will be ready for occupancy by January next.

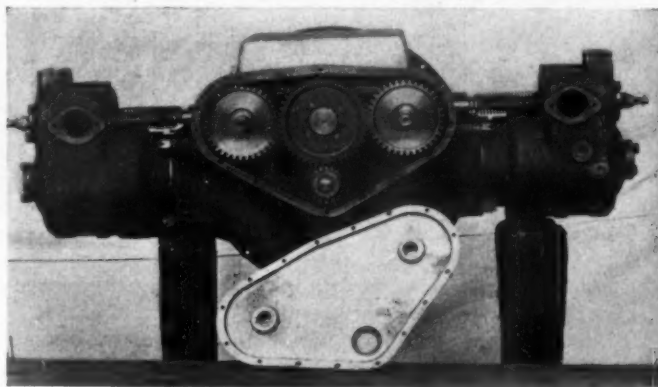
AUTO BODY COMPANY ELECTS OFFICERS.

LANSING, MICH., Sept. 24.—At the annual meeting of the stockholders of the Auto Body Company, officers were elected as follows: President, Lawrence Price; vice-president, H. E. Thomas; treasurer, E. S. Porter; secretary and general manager, H. E. Bradner. New machinery has been installed in the new factory additions and the facilities of the company for production have been materially increased.

MOTOR FOR THE RAMBLER RUNABOUTS.

Rambler model 27, the only runabout in the 1907 line manufactured by Thos. B. Jeffrey & Company, of Kenosha, Wis., was described in the last issue of THE AUTOMOBILE, and its general features covered. Herewith are published illustrations of the engine alone, giving an excellent idea of the construction of this simple and compact motor.

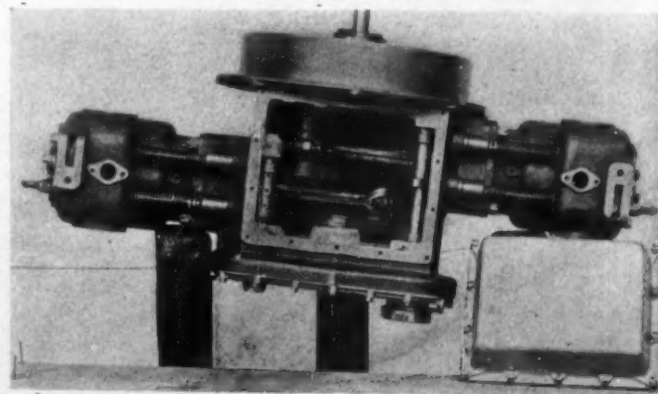
There are two camshafts, one for the valves of each cylinder, and these are operated by gears, as shown in the engraving,



RAMBLER RUNABOUT MOTOR WITH TIMING GEARS EXPOSED.

where the gear-case cover is removed. The cylinders have a bore of 4 1-2 inches and a stroke of 5 inches each, and are offset, as is usual with engines of this class. Cylinders are each in a single piece, with integral water jackets, heads and valve chambers. Pistons are of the same close-grained cast iron as the cylinders, and are fitted with four rings each, three above the pins and one below. After the pistons and rings are finished on grinding machines, they are put through a special final finishing process, which, the manufacturers state, gives a mirror polish and a gas-tight fit.

Valves are drop forgings of nickel steel and are of large diameter. They are operated direct from the push-rods, the cams acting on the ends of the push-rods in the usual manner.



TOP VIEW OF RUNABOUT MOTOR WITH CRANKCASE COVER OFF.

The use of two camshafts makes it possible to make the valve stems and push-rods very short, and access to the connecting-rod bearings is made easy at the same time, there being a wide space between the camshafts. Bearings are of anti-friction metal and are closely fitted to their journals. Main connecting-rod bearings are hinged and adjustable, while the piston pin is clamped tightly in the end of the connecting rod and works in bronze bushings in the bosses of the piston. This gives a large bearing surface and holds the pin securely in its place so it cannot work out and score the walls of the cylinder.

Spark plugs are placed in the path of the cool incoming gases, which is considered a distinct advantage. Ignition is by jump spark, with timer of the roller type.

AUTOING IN THE YOSEMITE.

It can be readily understood that automobiles are not looked upon as welcome visitors by the stage drivers and others who depend upon horses for their living in the beautiful Yosemite Valley in California, and the automobilist who ventures thither in the course of his touring must expect scant courtesy. Tolls are said to be a very uncertain quantity, mostly large, and gasoline is difficult to obtain; and if the car runs out of fuel on the road in the valley it is next to impossible to induce a stage driver to bring a supply.

These and many more things, some a good deal more agreeable, were noticed by W. T. Lewis, president of the Mitchell Motor Car Company, of Racine, Wis., while making a tour of the famous resort in a Mitchell touring car. Several friends of Mr. Lewis traveled in a second car, and it cost the party no less than \$200 in tolls to get through the Valley. Curiously enough, a party in a buggy went in just ahead of the cars and paid \$6.75. It is said that a good deal of the antipathy to automobiles has been caused by a few reckless drivers who failed to remember that there were horses and mules on the narrow roads overhanging bluffs and precipices, and made themselves, and automobilists as a class, disliked as a consequence.

Mr. Lewis and his party met with a number of interesting experiences. In one case the road was found obstructed by a huge boulder that had rolled down from a mountain, and the united efforts of ten men failed to dislodge the obstacle. Finally, however, a rope was passed around the big stone and the car used as a tug, with the result that the stone was hauled aside and the cars passed on their way. On another occasion a fallen tree obstructed the way, and this had to be chopped through.

Miss Helen Lewis, daughter of Mr. W. T. Lewis, drove one of the cars much of the time, handling the machine with the nerve and skill of an expert chauffeur.

The roads taken were, as a rule, not the roads usually fol-

lowed by automobiles, and steep hills, rough stretches and other drawbacks were encountered, in addition to mule teams and horses which had to be passed on the narrow trails.

After leaving the Yosemite Valley, Mr. Lewis and his party toured through many other California resorts, notably those along the coast. A stop was made at Pismo Beach, among other places, and here one of the cars was tried out for speed on the hard, smooth stretch of sand by the sea. With two passengers in the front seats, two dress suit cases on the running boards, and the top up, a mile was covered in 1:05—not bad going for a 30-horsepower touring car. Mr. Lewis is anxious to be in a position to say that he has toured in every section of California worth touring, and his last trip was to San Diego. After that the line will be crossed and Mexico invaded.

AUTOMOBILE TRADE IN GERMANY.

T. St. John Gaffney, consul-general at Dresden, reports progress in automobile building in Germany. He calls attention to the empire's efforts to keep ahead in its manufactures and furnishes evidence of the success of these efforts. He supplements his report by a reference to the law passed in 1905 to tax motorcycles and automobiles. He writes:

"The manufacture of automobiles developed in 1905 and the first half of 1906 to an extent probably unparalleled by any other class of goods. Foreign countries, in particular, could not be supplied fast enough with motor buses and cabs. Numerous orders were also placed by big German omnibus companies and private contractors. The motor-cab traffic in Berlin and Dresden has increased considerably and will continue to do so at a still faster rate. Motors of themselves were found useful for several military purposes. Prices for raw materials are permanently on the rise, but it is still quite possible to put on the market serviceable cars of stout build at from \$750 to \$900.



THE YOSEMITE VALLEY AS SEEN FROM ONE OF THE WINDING MOUNTAIN ROADS THAT OVERLOOKS THE WONDERFUL GORGE

TRADE CHANGES IN BOSTON.

Boston, Sept. 24.—Another shift in local trade circles, almost as revolutionary as that which took place here a year or more ago, is now in progress, and when it is over hardly a dealer will be in the same place where he was two years ago. It is a peculiarity of the situation, however, that very few of the Boston men have left the city, most of them still remaining here, either with new houses or in business for themselves as agents. An exception to this rule, however, is to be found in the latest shift announced. This is the resignation of E. A. Gilmore, who has managed the Boston branch of Thomas B. Jeffery & Co. since it was established, and who for a year previous to that traveled in New England as the representative of the Rambler car. Mr. Gilmore is to go to New York next month to become associated with Carl Page in the management of the White branch in that city.

Mr. Gilmore will be much missed in Boston, for he has not only been prominent in trade circles and as a member of the show committee for the past two years, but he has been a director and chairman of the runs and tours committee of the Bay State Automobile Association, and has originated and conducted some of the best runs of that organization. Mr. Gilmore is about the last of the Boston branch managers of the early days to make a change.

As the successor of Mr. Gilmore in the management of the Rambler branch, his younger brother, C. A. Gilmore, has been selected. C. A. Gilmore was formerly associated with his brother in the Boston branch as salesman, and a year or more ago was promoted to the position of traveling representative of the Rambler in Indiana, Michigan, Ohio and West Virginia. He is well known in Boston, and when here was prominent in the trade.

Another important shift is the transfer of the Thomas agency, which was noted in THE AUTOMOBILE a few weeks ago. Hereafter the Thomas Flyer will be handled by the Harry Fosdick Company, located in the Motor Mart.

A. R. Bangs, another prominent local dealer, who has been associated with the Franklin for some time, retired from connection with that car this fall, and the H. H. Franklin Manufacturing Company is to open a branch house in the newer automobile district on Boylston street. Mr. Bangs, it is understood, will handle the Frayer-Miller, which has been in charge of the Randliff Motor Company. The Stoddard-Dayton, which was also handled by the Randliff Company, is to be sold the coming year by C. F. Whitney, and there will be a salesroom in the Motor Mart. Mr. Whitney has conducted the Park Square Automobile Station for several years and he will continue to carry on the garage business in connection with this agency.

A. E. Morrison, who, after he left the management of the Peerless branch, joined the Morrison-Tyler Company, which had the Maxwell, Rainier and Marion cars, has left that firm, which has become the Maxwell-Briscoe-Boston Company. Mr. Morrison is soon to open an agency on Boylston street, corner of Fairfield, and has the Olds line and, it is said, will have the Stearns. The Olds agency has been held for a year by the Adams-Sutton Motor Company of the Motor Mart and the Stearns has been sold by the Reed-Underhill Company, agents for the Knox. The Premier also has a new agent in Boston, George C. Squier having secured this line of air and water-cooled cars.

There has been a change of agency also for the Baker electric. Formerly with A. R. Bangs it was taken over by J. W. Maguire Company, agents for the Pierce, and now is to be handled by the Harry Fosdick Company. Of the prominent agencies in which no change has been made so far Alvan T. Fuller continues with the Packard and Cadillac, F. E. Wing with the Marmon, Curtis-Hawkins Company with the Grout and Babcock Electric, the Kimball Company with the Corbin, Reed-Underhill with the Knox, W. E. Eldridge with the Buick, Butler Motor Car Company with the Cleveland, Bay

State Automobile Company with the Queen, Imperial Automobile Company with the Aerocar, George Dunham with the Royal and Charles Haigh with the Northern.

A new Boston agency is soon to be opened by C. E. Faye, of the Harvard Automobile Company of Cambridge. Mr. Faye will handle the Matheson in this territory.

MAKING IT EASY FOR THE MOTOR.

Any automobilist who had the hardihood to run—or attempt to run—his gasoline motor on steam-engine oil, however good, would soon find himself at the heels of man's best friend, for the lubricant would not lubricate for more than a few brief explosions. It would be a severe and expensive lesson in the eternal fitness of things. Even good explosion motor oil may not be just the thing for one particular motor, no matter how well it may be adapted for another, for motors have their characteristics. So have oils, and the best results are gained only by a proper combination of motor and oil. The Vacuum Oil Company, of Rochester, N. Y., makes a specialty of suiting oils to engines, and issues a booklet with a list of the different automobiles on the market and the particular one of the five grades of "Mobiloil" suited to each car. There is also a lot of information on automobile matters and a list of automobile records to date. The booklet is given away upon application to the company's offices, and is worth asking for.

NEW GASOLINE LAW AT GRAND RAPIDS.

GRAND RAPIDS, MICH., Sept. 24.—At the request of the owners of garages the common council has amended the ordinance regarding the storing of gasoline, removing that part of the law that requires that the fluid be stored at least 50 feet from any building. Proprietors of garages may now store gasoline in the building itself, providing it is kept in underground tanks. The quantity which may be stored has also been increased, much to the satisfaction of the garage men.

A BAGGAGE CARRIER FOR RUNABOUTS.

Touring in an automobile is very much pleasanter if one has suitable means for carrying the necessities that cannot be left behind; there is but little fun in having a couple of suit cases and other duffle kicking around on the floor or running-boards. The simple arrangement shown in the illustration has been got up and designed by Pedrick & Smith, of Germantown, Pa., for runabouts, and is very strong and substantial and easily manipulated. When not in use it folds up against the back of the seat, out of the way. It does not interfere with the raising of the rear deck at all. The illustration shows the device so clearly that extended description is quite unnecessary.



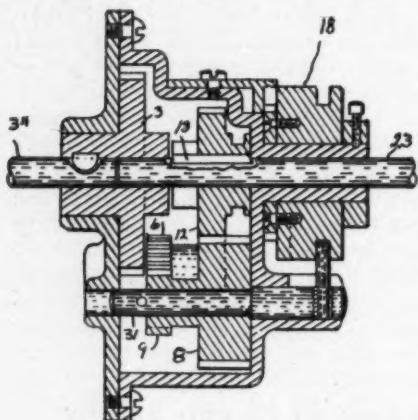
NEW FOLDING LUGGAGE CARRIER FOR RUNABOUTS.

Patents

Speed-Changing Gear.

No. 829,242.—J. F. Warner, of Muncie, Ind.

This is a compact speed-changing gear, giving two forward speeds and reverse, with direct drive for the high speed, and sliding engagement for the other gears. In the sec-



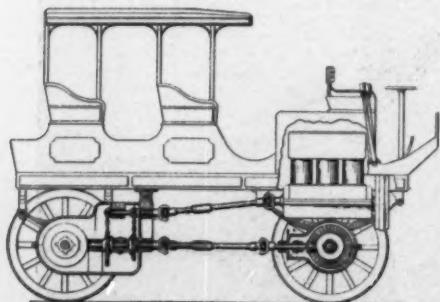
WARNER TWO-SPEED AND REVERSE CHANGE SPEED GEAR.

tional view, 23 is the driving and 34 the driven shaft. Gear 12 slides on 23 and engages gear 3 by a claw clutch for the direct drive. It is also in constant engagement with gear 8, which, for the slow speed, is shifted together with pinion 9 till the latter engages gear 3. For the reverse a pair of pinions 6 6' is employed, one of which is constantly engaged with gear 8. These are slid on an intermediate shaft 36, till 6 engages 3. The shifting of these various gears is accomplished by means of a large cam 18, which is rotated by means of a rack and actuates yokes or pins 38, 39, 40, attached to slidable shafts 31, 35, 36, by which the several gears are shifted.

Front and Rear Drive.

No. 830,642.—E. Chaquette, of New Rochelle, New York.

This invention contemplates driving the rear wheels from an engine mounted in front, and driving the front wheels by a



CHAQUETTE FOUR-WHEEL DRIVE SYSTEM.

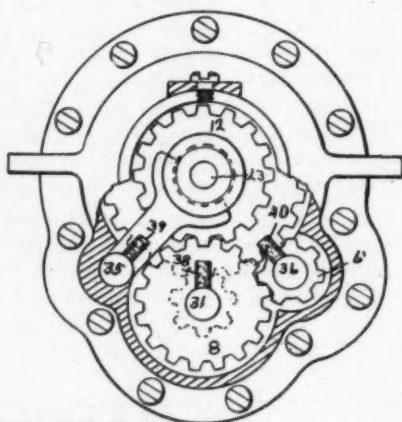
jointed shaft from the bevel pinion shaft which drives the rear wheels, the arrangement being substantially as shown in the

drawing. Universal joints are provided in the live front axle to transmit power to the front wheels. Apparently the invention does not contemplate any provision for compensation of accidental differences in diameter between the front and rear wheels.

Transmission Gearing.

No. 830,460.—T. Stafford, of Topeka, Kan.

This is a separate device for a sliding-



gear transmission, by which a single movement of the gear-shifting lever acts first to release the clutch and then to shift the gears, after which the clutch is re-engaged. The mechanism comprises a rockshaft, from which the shifting lever is operated, and a cam on the rockshaft, which operates a lever releasing the clutch.

Engine Construction.

No. 830,099.—J. W. Packard, of Warren, O.

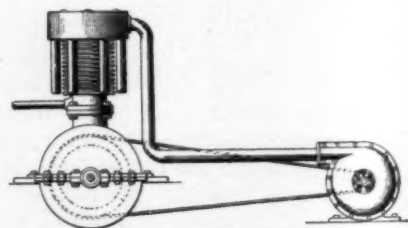
This construction covers two things. First, the method of attaching the cylinders of an engine to the crankcase, and second, the form of the cylinders themselves in a two-cylinder engine. The cylinders are cast

separately, each with its own water jacket, and the jackets are cut away where they adjoin each other, and the surfaces planed smooth, the object being to get the cylinder walls closer together without touching than could be done if the cylinders were cast together. The jacket walls are provided with suitable flanges and bolts where they come together. The ends of the cylinders toward the crankcase are extended to enter an extension of the crankcase, which is bored to receive them. The crankcase itself is split horizontally (i.e., at right angles to the plane of the division to the cylinders) and the two halves of the crankcase are bolted together and to the cylinders by suitable lugs and bolts. The air can be made to blow directly upon the desired parts of the cylinders and the volume blowing on each can be regulated by the size of the holes.

Air-cooling Device.

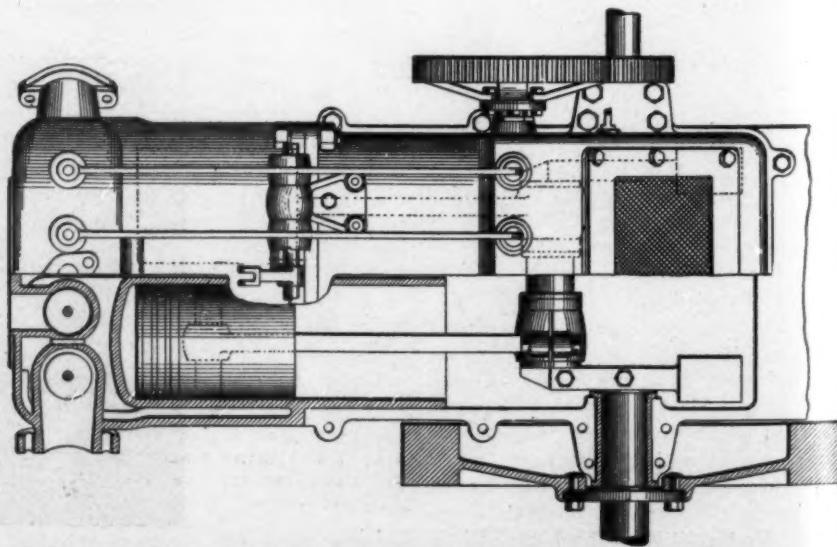
No. 830,556.—H. G. Alexander, of Londonderry, Vt.

The engine cylinder is suitably ribbed and is cooled by a blast of air from a blower, which transmits air to a chamber on the cylinder head. This chamber is perforated on the side toward the cylinder



ALEXANDER'S AIR-COOLING SYSTEM.

head, and is connected with several air pipes, closed at their further ends, and having each a series of outlet holes, directed toward the cylinders, so that the air blows from the pipes on the flanges of the cylinders.



PACKARD TWO-CYLINDER ENGINE CONSTRUCTION WITH UNITED WATER JACKETS.

NEWS AND TRADE MISCELLANY.

Montreal will hold its second automobile and sportsman's exhibition April 6 to 13, 1907.

The Foss-Hughes Company, of Philadelphia, Pa., local agents for the Pierce cars, have opened a branch agency in Providence, R. I.

The suit brought a short time ago against the Midgley Manufacturing Company, of Columbus, O., by John C. Spiers, formerly superintendent of the Columbus plant, has been dismissed by the court.

The Rex Imperial Leather Company, of Newark, N. J., has recently completed extensive improvements and additions to its plant and is in a position to fill promptly all orders for high-grade leather goods.

An automobile building plant has been installed in the premises formerly occupied by a gas machine manufacturing company at Davenport, Ia., and is under the management of A. Peterson and B. Liegert.

The Oscar Lear Automobile Company, of Columbus, O., manufacturing the Frayer-Miller air-cooled car, has increased its capital from \$30,000 to \$200,000, and is considering arrangements for a new and larger plant.

E. A. Fairbrother has succeeded H. H. Thorpe as acting manager of the Aerocar Company, of Cleveland, O., Mr. Thorpe having severed his connection with the Cleveland branch. This concern handles the Aerocar and the Maxwell at its Euclid avenue place.

The Electric Vehicle Company, of Hartford, Conn., manufacturing the Columbia gasoline cars, states that there is a large and increasing demand from foreign countries for printed matter regarding the Columbia cars, while several foreigners have made applications for exclusive selling rights abroad.

The Chicago Motor Car Company, heretofore doing business under the name of the Chicago Packard Company, announces that the name of the corporation was changed September 12 to the Chicago Motor Car Company. The personnel and address of the company remain unchanged, the office and showrooms still continuing at 1344 Michigan avenue.

The Hess-Bright Manufacturing Company, of Philadelphia, has found it necessary to remove to larger quarters to accommodate the rapidly increasing business in locally manufactured H-B ball bearings and the handling and shipment of imported D. W. F. ball bearings. The new quarters are at the northeast corner of Nineteenth and Hamilton streets, Philadelphia.

The Continental Motor Manufacturing Company, formerly of Chicago, Ill., but now of Muskegon, Mich., has filed incorporation papers under the Michigan laws, and increased its capital stock from \$100,000 to \$125,000. The company was incorporated under the laws of Illinois, but thought it better to reincorporate after moving into Michigan. No changes have been made in the personnel of the company.

The Kilgore Automobile Air Cushion Company, of Boston, is making a specialty of fitting the Kilgore pneumatic shock eliminators to physicians' automobiles that are fitted with solid tires. Dr. LeRoy F. Purdy, of Boston, has been using the device in combination with solid tires for the past 18 months, and Dr. Albert E. Rogers, an-

other Hub physician, has found them to be highly satisfactory on his solid-tired Maxwell runabout.

James Couzens, secretary-treasurer of the Ford Motor Company, of Detroit, has visited the principal Ford agencies east of the Mississippi to talk with agents regarding plans and policy for the coming sales campaign. No new agencies will be taken on for 1907, as the company will have all it can do to supply the old ones. The company states that it will turn out 1,000 six-cylinder cars and 10,000 of the four-cylinder runabouts, but no intermediate car.

Plans are being formulated for a one-gallon efficiency contest by the Chicago Automobile Trade Association, as a wind-up to the season. The idea is to give the cars each a gallon of gasoline and start them from the Crown Point track, some forty miles from Chicago. After traversing a circuit of ten miles, the cars are to return to the track, if they have sufficient liquid energy left, and finish their run there, in plain sight. The ton-mile system of handicapping will be employed.

Owing to the large business in Rambler cars in Philadelphia, Thomas B. Jeffery & Co., of Kenosha, Wis., manufacturers of the Rambler, have erected a building in Philadelphia which will, it is hoped, prove ample to handle the business for the coming season. During the season of 1906 nearly 500 Ramlers of various models were sold by the Philadelphia agency, but inability to make delivery caused the loss of 262 orders. Therefore it is thought high time to provide more room and better facilities. The new building, which is already in use, will be formally opened in a short time. During the opening the first Rambler car sold in Philadelphia, sold in 1900 and still in use, will be exhibited.

A very neat mica insulated spark plug is made by the Richardson Engineering Company, of Hartford, Conn., under the name of the "Rich Spark" plug. The plug has a mica insulation put together under heavy pressure without shellac, and there is no packing in any part of the plug. The central electrode passes through the insulation and on the inner end spreads out into a cap which covers the end of the mica core. This projects well into the cylinder, bringing the spark into the charge to be ignited and also making the plug an easy one to clean. The shell of the plug is of brass. The Richardson company is well known as manufacturing electric automobile charging outfits, electric light and ignition outfits for launches and yachts, residences, and so on.

THE GROWING GARAGE LIST.

F. S. Royster, of Norfolk, Va., has arranged to build a garage on Mill street in that place, at a cost of about \$4,000.

The Mobile Carriage Company, of San Francisco, Cal., is having plans prepared for the construction of a large modern garage, similar to one of the recently built New York garages. There will be accommodation for about 100 cars.

A new garage with accommodations for 70 cars has been commenced at Talbot avenue and Spencer street, Dorchester, Mass., and will be completed about the first of the new year. The building will be of cement block construction; in the basement will be a well-equipped machine shop. The building will have a frontage of 75 feet on Talbot avenue and 150 feet on Spencer street. Bert

Brewster, who is at present at the Talbot avenue garage, will be the manager of the new establishment.

The Northwestern Motor Car Company, of Seattle, Wash., has let contracts for building a two-story, brick building on Second avenue, between Adams and Jefferson streets, and will use the building as a garage. The dimensions will be 50 by 140 feet.

Golden Gate avenue, San Francisco, the local "automobile row," is to have another garage. The building is now going up near Larkin street and will be occupied by the Hovey-Boushey company, a concern handling Pope cars exclusively. The establishment will be modeled after the best Eastern garages and will be among the finest in San Francisco.

The Capitol City Automobile Company, of Atlanta, Ga., has leased what was formerly a skating rink on Peachtree street and converted it into an up-to-date garage. The floor space is 220 by 90 feet in the clear, without pillar or post, and there is ample room for 150 cars. Machines of all kinds—gasoline, steam and electric—will be stored, repaired and cared for, and the company has secured the agency for the Stevens-Duryea car. A number of prominent business men of Atlanta are financially interested in the enterprise. The officers of the company are J. H. Nunnally, president; George C. Walters, vice-president; Asa G. Candler, Jr., treasurer, and Nixon Ball, secretary and general manager. The repair department is equipped with modern machinery, and is in charge of B. H. Warthen, assisted by A. R. Alman.

AUTOMOBILE STAGE LINES.

Plans are being made for running a line of stages between the city of Guadalajara, Mexico, and a popular resort called Chapala.

The Lawrence Motor Car Company, of Lawrence, Kansas, has purchased a passenger automobile and is running it on a regular schedule through the town. A second car will be put on shortly.

A new Reliance touring car has been added to the equipment of the automobile passenger service between Port Jervis and Middlet Milford, N. Y. The car was sent to its destination from New York under its own power, and made a very satisfactory run to Port Jervis.

RECENT INCORPORATIONS.

The Dooling Motor Car Company, Cleveland, O.; capital, \$10,000. Incorporators, Rolla Dooling, F. J. Wolcott, F. J. Southard and J. Comstock.

American Auto Brass Company, Columbus, O.; capital, \$20,000. Incorporators, George F. Hill, Milo B. Lee, Roy Coffman, E. S. Adams and E. B. Yohe.

A. B. Nichols Company, New York; capital, \$25,000. To manufacture automobiles. Incorporators, A. B. Nichols, J. W. Righter and J. F. Taylor.

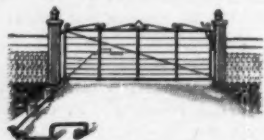
Imperial Garage Company, Columbus, O.; capital stock, \$10,000. Incorporators, Frank S. Lott, William M. Edwards, Harry Wagner, W. S. Van Fossen and E. J. Williams.

Dayton Automobile Company, Dayton, O.; capital, \$25,000. Incorporators, John L. Baker, Edward E. Burkhardt, H. A. Treasler, A. M. Dodds and John N. Van Deman.

Wilmot Motor and Cycle Manufacturing Company, Camden, N. J.; capital, \$125,000. To manufacture automobiles, motorcycles and bicycles. Incorporators, C. M. Cuckman, W. Davis, R. K. Dix, A. S. Flowers and M. M. Garrison.

INFORMATION FOR BUYERS.

SELF-OPENING GATE.—There is very little fun in getting out of one's car, perhaps in the dark and rain and mud, to open a gate, and getting out again to close the gate after passing through. Automobilists who have had to do this often will appreciate the beauties of the Manlove self-opening gate, manufactured by the Manlove Gate Company, of 273 East Huron street, Chicago. The gate is of light steel construction, though substantial, and is carried on ball-bearing hinges. A little distance up and down the road from the gate are



MANLOVE SELF-OPENING GATE.

placed two trips, each in mechanical connection with the gate. The approaching automobile or carriage runs its front wheel over the first trip, which opens the gate to allow the vehicle to pass through. The passage of the wheel over the second trip closes the gate, and all this without any trouble or annoyance to the driver. The manufacturers state that the gate is made for long service and will give continuous satisfaction.

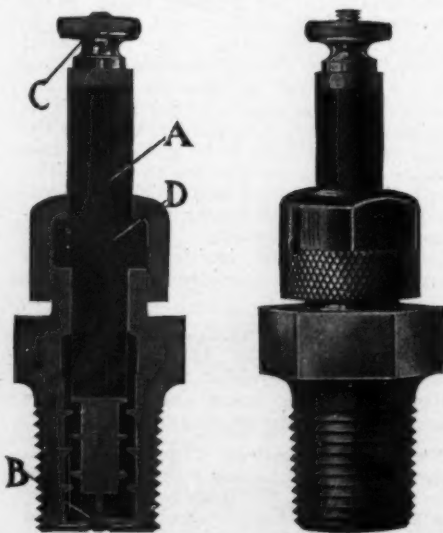
PORTABLE HOUSES.—An exceedingly interesting catalogue, well illustrated, has been issued by E. F. Hodgson, of Dover, Mass., describing the "Wigwam" portable houses manufactured by this concern. While the cottages and other forms of buildings are attractive to nearly everyone from some point of view, automobilists will naturally take particular interest in the portable garages described and illustrated on pages 26 to 34. These automobile houses are made in various sizes from 10 x 12 feet upward, and are furnished complete with windows, doors, hoods for windows and doors, inclined run, bumper and floor, and the building is given three coats of paint. Solid doors are ordinarily furnished, but glass doors can be fitted at an advance in the cost. Window blinds are fitted to some of the garages and included in the regular equipment. The largest garage catalogued is meant for two touring cars and is 18 feet square. It is made with a hip roof with a ventilating cupola at the apex; the ventilators are controlled from the inside. There are two sets of glass doors, each pair 8 feet high and 7 1-2 feet wide, fitted with excellent morticed locks, with duplicate keys; 9 windows, with blinds; inclines to both doors, and bumpers for each car. As extras, the house can be fitted with closets with paneled doors and locks, a heavy work bench and trap doors to be used as pits for working under cars and robe racks; also the inside can be oiled or stained.

TRUSSED CONCRETE BUILDINGS.—Decidedly interesting is the recent automobile number of the Trussed Concrete Bulletin issued by the Trussed Concrete Steel Company, of Detroit, Mich. The number of garages and other automobile buildings that are being constructed of concrete makes the bulletin additionally interesting. The particular topic of the bulletin is the new buildings for the Packard Motor Car Company, of Detroit, and some of the illustrations are striking. One illustration shows a single huge room 60 feet wide, and no less than 600 feet long, with a single row of

concrete pillars down the center. Among the automobile manufacturing concerns whose buildings are partly or wholly of reinforced concrete construction are mentioned the Cadillac Automobile Company, the Garford Company, the E. R. Thomas Motor Car Company and the George N. Pierce Company.

AUTOMOBILE MONOGRAMS.—All kinds of monogram work, in metals, woods, pearl, shell—in fact, any suitable material—are executed by Frank C. Field, of 605 St. Clair street, Toledo, O. The "Field Shop" undertakes to furnish a well-composed, evenly-balanced, bold and readable monogram, with as few projecting ends to catch and rattle as possible, and with suitable fastenings. Large monograms for automobiles, yachts, and so on, are made from hardened bronze plate. Monograms can be plated with copper, brass, nickel, black nickel or zinc, with polished, rubbed, frosted or satin finished surfaces; while the coloring may be grays, browns, verdi green, English, steel or oxidized. Or any other color can be applied to suit the fancy of the purchaser. Advance designs are furnished at slight cost; or, if the customer furnishes his own designs, of the exact size and composition, a reduction in the price of the job will be made, equal to the price charged for furnishing advance designs. Work can be done in any of the precious metals and can be encrusted with real or imitation jewels. In fact, there seems to be no practical limit to the scope of the monogram work done by the Field shop.

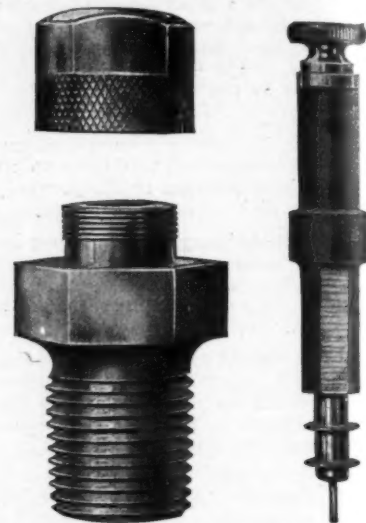
SHUR-SPARK PLUG.—A new and ingenious device for the prevention of short-circuiting has been adopted in the "Shur-Spark" plugs manufactured by the Igniter Appliance Company, of Central avenue, Cleveland, O. The illustrations show the arrangement of the parts very clearly. As will be seen by inspecting the sectional illustration, the main feature of novelty in the plug is the arrangement of the sparking



SHUR-SPARK PLUG, INTERIOR AND EXTERIOR.

points and the chamber surrounding the lower end of the central electrode. Instead of a plain-walled chamber, there are a number of rings formed on both the inner walls, and when the plug is assembled these rings alternate, forming a tortuous passage through which the gases rush during every stroke. The rings become very hot, but not so hot as to cause pre-

ignition, and any oil deposited on them becomes dried up and is carried out by the gases of subsequent explosions. In the sectional illustration *A* is the central insulation surrounding the central electrode, and is composed of mica or porcelain, according to the preference of the purchaser. An enlarged central part *D* serves to hold the insulation in place when the nut *D* is screwed down. The binding nut *C* secures the end of the wire from the coil. The



COMPONENT PARTS OF SHUR-SPARK PLUG.

sparkling point *B* is surrounded by a metal ring with three points for the passage of the spark. The rush of gas through this small aperture is quite violent, and sets up a strong sweeping action which keeps the points clean and free from deposits of oil and soot. The Shur-Spark plug is very neat in appearance and has a milled nut, which may be quickly screwed down until it strikes the insulation, when the wrench is applied.

NEW BORBEIN COMPANY.—The Borbein Auto Company is the new name of an old and well-known concern familiar to the automobile trade for a number of years under the name of H. F. Borbein & Co., of St. Louis, Mo. The first catalogue under the new name has just been issued and shows that the company is continuing its line of business in the same way but on an amplified scale. The Borbein Auto Company manufactures and deals in automobile parts of all kinds, large and small—axles, forgings, bodies, frames, engines, transmissions—and from them can be purchased every part necessary to build a complete car of practically any type, pleasure or commercial. A specialty is made of bodies. They do not, however, furnish complete cars, and the bodies are not painted beyond the first coats of priming. The catalogue is really interesting.

HARTFORD TIRE CATALOGUE.—The latest development of the Hartford quick detachable tire, manufactured by the Hartford Rubber Works Company, of Hartford, Conn., is exhaustively described and illustrated in a little booklet issued by that concern. The new turnbuckle for securing the detachable ring is given particular attention and its operation made very clear.

JOSEPH DIXON CRUCIBLE COMPANY, JERSEY CITY, N. J.—Booklet explaining the use of Dixon's Silica-Graphite paint, as used for the protection of structural steel work, and describing the condition of steel, treated with this paint, after having been through the "San Francisco Furnace."